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Fire Support Co-ordination

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

"THE complete integration of all types of supporting fires is essential to the success of the ground battle. The over-all fire support plan is one of the prime concerns of division and corps commanders in battle operations." So states Lieutenant General E. M. Almond, former commander of the X Corps in Korea.

The proper use of all available fire power has long been a prime concern of field commanders. From early battles with simple individual weapons to the present array of complex war machines, the outcome of engagements frequently has been decided by the better employment of available fire power.

Fire Support Means

What means of fire support are available to today's field commander? First, there are the organic weapons of the infantry regiment, ranging from individual weapons such as Browning automatic rifles (BARs) through machine guns and mortars, to the weapons of the tank company. Then there is the artillery—cannon, rockets, and guided missiles—divisional, corps, and army. Antiaircraft artillery also can be used to support the ground-gaining arms. When a commander decides that antiaircraft artillery (AAA) weapons can contribute more to the well-being of the force in the ground role than in the antiaircraft role, their tremendous rate of fire greatly augments other close-support weapons. Air Force fire power with a variety of munitions—rockets, napalm, fragmentation and demolition bombs, and strafing—is available to infantry and armored forces in close-support missions. Finally, when the geographical location of the battle allows, naval gunfire can influence the action with weapons ranging from the destroyers' 5-inch guns to the 16-inch weapons of battleships.

This large armory has but one purpose on the battlefield—support of the ground-gaining soldier. The best use, the most rapid and flexible employment, of this tremendous potential is an ever growing problem with the constant increase in types of weapons. During World War II, many commanders realized that the proper co-ordination of fire power had become such a large task that they could not devote, personally, an adequate amount of time to it. The task had to be delegated. For most commanders, the artillery officer appeared to be the logical choice. Thus, fire support co-ordination was practiced informally long before it appeared as a

Fire support co-ordination provides for the effective co-ordinating, planning, and integrating of the available fire power of artillery, naval, and air units used to support the troops which close with the enemy

formal Fire Support Co-ordination Center (FSCC). Department of the Army Training Circular No. 13, dated 7 December 1949, was the first recognition of the FSCC concept, which since then has been finding its way into all types of training literature.

Fire support co-ordination is the co-ordinating, planning, and integrating of the available fire power of artillery, naval, and air units used to support troops which close with the enemy. The co-ordinator is responsible to the commander for the performance of these tasks. The agency where these tasks are accomplished is the FSCC. To a more or less formal degree, this task is undertaken at all levels, from company to army. At all echelons, the artillery officer is the fire support co-ordinator.

The Artillery Commander

At division and higher levels, the artillery commander is a special staff officer of the commander. As such, he acquires the additional responsibility for fire support co-ordination. The artillery battalion commander in direct support of a regiment performs the fire support co-ordinator's task. Although not on the supported commander's staff, in effect he is a staff adviser on all fire support matters.

Dual Purpose

An artillery commander, then, performs two principal tasks: (1) he commands the artillery of the unit and (2) he is the artillery adviser and fire support co-ordinator, in which role he co-ordinates the fire power available and advises the commander on all fire support matters. As fire support co-ordinator, the artillery commander has no command function except as may be delegated specifically to him by the commander. He retains command over his own artillery units, but—in the name of the commander—he requests air and naval fire support through the representatives of these services who are present in the FSCC.

The organic fires of supported units below the division level are not controlled by the FSCC. It is felt that the regimental and lower echelon commanders need freedom in using their own fire capabilities. However, the fire support co-ordinator does ensure that other means of fire support are integrated with the regiment's organic fire power.

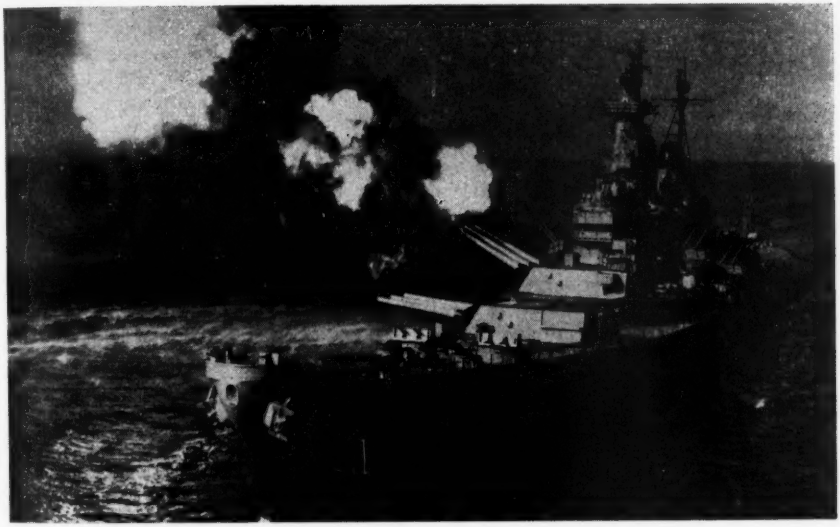
Co-ordinator's Responsibilities

The co-ordinator is responsible for both long-range planning and immediate action. He is vitally interested in all planning in order to determine whether sufficient fire power is available to the division for the impending operation and just how available this fire power is. For example, should the close air support be on overhead alert rather than on ground alert?—should a heavy cruiser be available to the division on call rather than be in general support of the corps? Once the operation has been thoroughly planned and all fire support plans have been written and announced, then the bulk of the work of the FSCC concerns fires on targets that are newly developed, be they of a fleeting nature or static targets that may not require immediate attack.

Certain principles govern the operation of the FSCC. The policy of the commander is announced and expressed in combat orders and policies. In this manner, the general plan of maneuver is made known. The co-ordinator is governed by this plan in determining what elements of the unit get priority of fires. This is applicable both in long-range and immediate planning.

Lowest Echelon Principle

Primary consideration is given to the type of fire support desired by the commander. Whenever possible, the type desired—artillery, air, or naval—is arranged. The lowest possible echelon called on fulfills the request. For example, if a naval strike is decided upon, the destroyer supporting the regiment will handle the mis-



The support fire means available to ground troops may include naval gunfire, Air Force weapons, and artillery, as well as those weapons which are organic to the supported unit. Above, the USS *Missouri* firing a salvo off the Korean coast. Below, fighter aircraft and tanks providing support for attacking infantry troops.—Department of Defense photos.

sion, if possible; otherwise it is handed on up the line until a weapon of sufficient range and caliber is found, such as the heavy cruiser supporting the division.

In co-ordinating fire support, final co-ordination is effected by the lowest echelon that is capable of doing it. If, for example, the division FSCC can co-ordinate air, navy, and artillery—even though corps artillery might be involved—then the corps FSCC is called upon only to assist, with the responsibility resting on the division FSCC.

A common system of target designation must be used by all fire support agencies. There was much confusion in the early days of the Korean conflict when United States Air Force pilots were using small-scale maps with a grid system different from that of the larger scale Army maps. Ground observers attempted in vain to designate targets to close-support airplanes. Not until a common grid was established could effective support be provided.

Whichever echelon does the co-ordinating, the FSCC of that echelon is responsible for the safety of all friendly installations, troops, airplanes, and vessels. However, safety alone is not the entire story. For example, a preplanned air strike may necessitate a period of artillery silence. If this period is excessive, if the aircraft arrive late, if an emergency arises that makes breaking of the no-fire period by the artillery essential—if any of these or other possible contingencies arise, the FSCC must rise to the occasion, rapidly change the carefully laid plans, and find the best possible solution to the situation. Either excessive emphasis on safety or neglect of versatility of fire support co-ordination can be equally disastrous.

Types of Fire Support Plans

Two types of plans are concerned with fire support:

The *general plan of fire support* establishes the governing fire support principles for a particular operation. This plan is based on the general plan of fire support of higher headquarters or on the commander's concept. It is usually issued as an annex to the operations order. It contains the organization for combat; assignment of zones of fire; allocation of tactical air, naval gunfire, and special weapons support; procedures for fire support that deviate from the established standing operating procedure; safety measures to be employed; ammunition data, such as the supply rate; a summary of confirmed targets, together with recommended priorities of attack; information on assistance possibly available from adjacent and higher echelons; and a description of the target designation system.

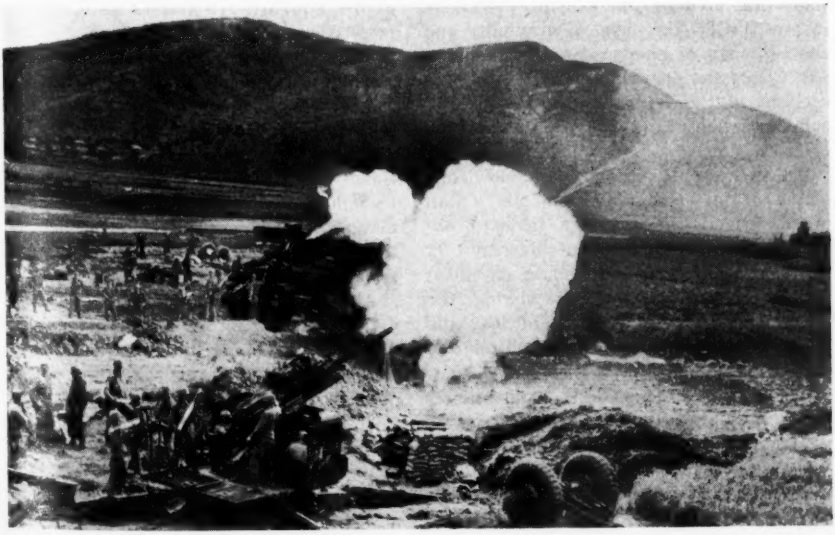
The *fire support plan* is composed by the FSCC and published as part of the operations order. It contains detailed instructions to all fire support agencies available to the particular echelon as to what fires they are assigned, with detailed instructions for the attack of each target. The fire support plan is the end result of much detailed study, planning, and consulting among the personnel of the FSCC. It represents co-ordinated and integrated fire plans for all agencies. The fire support plan of any echelon is based upon the planning and co-ordination previously accomplished by lower echelons.

FSCC Personnel

The personnel of the FSCC, in general, are the artillery commander, acting as the co-ordinator for the force commander or his representative, and representatives of the available fire support means. At the lower echelons, the FSCC may well consist of no more than two or three officers occupying neighboring foxholes. They may be the artillery forward observer or liaison officer, a forward air controller, and a naval gunfire liaison officer.

At higher levels, a group of representatives of the force and the support means concerned comprise the FSCC. At corps,

The tremendous rate of fire of antiaircraft artillery weapons may be employed to complement artillery fires in a ground role when it can contribute most to the well-being of the supported troops. Above, a 105-mm howitzer crew firing at an enemy target. Below, an antiaircraft artillery battery attacking a ground target.—Department of Defense photos.



for example, the following are likely to form the FSCC: the co-ordinator in the person of the artillery commander or a senior staff officer designated by him, the corps G3 (Air), the corps G2 (Air), the artillery S3 or his representative, the artillery S2 or his representative, an air liaison officer (ALO), a naval gunfire officer who is an Army officer, an assistant naval gunfire officer who is a Navy officer, and the necessary enlisted operations and communications personnel.

Principles Are the Same

The principles under which any FSCC operates, regardless of its level, are much the same. The volume of work varies greatly, as does its nature. In the infantry battalion, co-ordination concerns targets of opportunity almost exclusively. The field army FSCC plans primarily for the future; the long-range operations and logistical plans of the army commander influence its fire support planning.

Co-operation Between Commanders

At all times—and this is one of the most important of the operational principles of any FSCC—the physical proximity and the intimacy of co-operation between the FSCC and the operations and intelligence sections of the force commander are absolutely essential to successful fire support co-ordination.

As an example, without the knowledge of the infantry company commander's plan of maneuver, the artillery forward observer cannot advise intelligently on whether artillery or air should be called for on a specific target. The timing, the accuracy, the type of ammunition, the volume, the surprise element, and the control of the attack by fire power may each be of greater or lesser importance, depending on the plans of the platoons of the company.

It is generally advocated, therefore, that the FSCC be physically located at the supported unit's command post. In the case of the infantry regiment and the field artillery battalion, this often necessitates a split of the artillery command post since the fire direction center must be located so that it can best control the fires of the three batteries. The availability of communications, usable battery positions, and a good road net may necessitate a material distance between the infantry and artillery command posts. In that case, the artillery commander, with the necessary personnel to operate the FSCC, will be located at the infantry command post. The closest co-operation between commanders is essential so that both can perform their vitally important command functions, as well as their duties pertaining to co-ordination of fire support. A certain amount of delegation of authority is obviously needed.

Support Co-ordinator Tasks

The fire support co-ordinator is charged with a number of specific tasks, the more important of which are listed here: He advises the commander as to the most effective employment of the available means of fire support. He arrives at his recommendations after careful consultation with the air, naval (if appropriate), and artillery personnel in the FSCC. He informs the commander of the situation as it concerns fire support.

The assignment or attachment of additional support means must be reported promptly to the supported force commander since this will affect his plans for the employment of the ground-gaining troops.

As the force commander's plans develop and change during the course of prebattle planning or during an operation, the co-ordinator re-evaluates the requirements of the command for supporting fire. His findings may influence the commander to request additional support from higher headquarters.

The co-ordinator plans the fire support of the force. The FSCC integrates the fires

of the several support means into a single, co-ordinated plan. This is the pay-off task of the FSCC. The more detailed and all-encompassing this planning is, the more assurance there is that all foreseeable contingencies can be dealt with promptly and decisively during battle.

Governing Principles

In co-ordinating the support means, the co-ordinator is governed by certain simple principles. Interference between fire support means must be prevented. Obviously, either artillery or naval gunfire can interfere with aerial strikes, and vice versa. For the benefit of the infantry, this must be controlled so that minimum time is lost in delivering fires upon the enemy.

A minimum expenditure of support means must be used to obtain the required results upon hostile targets. However, this principle is subject to modification. To quote a veteran of Korean fire support work: "I have placed air strikes on fine artillery targets. I had the aircraft overhead. I could get the air in a very few minutes. Artillery was busy elsewhere, or a flight that was working in the area would have to be called off if artillery were used."

The co-ordinator is also charged with integrating tactical air reconnaissance requirements pertaining to fire support. Requests for aerial reconnaissance and photography for target acquisition are co-ordinated to eliminate duplication of effort or waste of the precious reconnaissance potential of the Air Force. Information received from any one of the fire support means by the FSCC is made available to the other means. Records are maintained of all targets confronting the force, as well as of any targets attacked along with damage estimates. Measures are taken to protect fire support means and supported troops from friendly fires.

Co-operation

The question frequently arises as to how well the representatives of three different services get along under the direction of an Army co-ordinator. This can be answered best by a quotation from an experienced FSCC member in Korea: "We definitely never had any misunderstanding of any kind, and we did not care who furnished what nor who did what—there was no jealousy. We were all on the ground in the same trouble. I believe that all we have to do is to get enough people in trouble (under hostile fire) and our problems will dissolve. From time to time we would hear rumors that originated at higher levels that the services were at cross purposes on certain items such as who would direct aircraft and who would control them at the lower level. On the receiving end, where the mission is actually accomplished—where you win or lose—that was no problem and there was never a word involved. We tried to do the best we could with what we had."

Marine Close Air Support

Developments have been made by the Marine Corps that closely parallel and resemble the Army's system of fire support co-ordination described here. During the many invasions in the Pacific theater during World War II, the Marines discovered the need for an agency such as the FSCC. After the war ended, they formalized the scheme. The major difference today between the Army and Marine systems of fire support co-ordination is the existence of an organic close-support air force in the Marine Corps, which simplifies the method of calling for and controlling air strikes. However, the similarity of the two independently developed systems, as well as the successful employment of the FSCC in the Korean conflict, proves the soundness of recent developments in fire support co-ordination. These developments seriously concern and affect all combat elements of the armed forces.

Spoiling Attack

Lieutenant Colonel William R. Desobry, *Armor*
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DECISIVE results cannot be achieved by the defense alone. The power of initiative, over-all threat, and the ability to strike at the time and place of his choosing remains with the attacker. Only by the offensive can decisive results be achieved.

When forced into the defensive, the attitude and formation adopted in the conduct of the defense must be predicated upon maximum mobility, aggressive countermeasures, and the achievement of surprise. The ultimate aim is to force conditions to a point where the defender, having prevented the attacker from gaining his objectives, is capable of turning to offensive action in order to inflict the desired decisive defeat upon the enemy.

Decisive Element of the Defense

Since it is often impossible to maintain a defensive position merely by defending in place, the counterattack is the decisive element of the defense. However, the counterattack is launched after the enemy attacks and against enemy penetrations. The defender is capable of aggressive action prior to an attack and penetration. Every aggressive means which the defender is capable of adopting which will inflict damage, cause disruption, or force delays must be undertaken. Aggressive measures which should be adopted whenever conditions permit include raids, feints, demonstrations, patrols, spoiling attacks, and harassing fires.

The defender must be ever watchful to detect enemy errors in formation, dispositions, and alertness. Whenever such errors or failures become apparent, the defender must be quick to take advantage of them.

An Offensive Defense

One extremely effective measure available to an alert defender, but which is rarely used, is the spoiling attack. A spoiling attack is a limited objective attack launched by a defender against an enemy formation, normally in an assembly area, for the purpose of destroying that formation and/or gaining a tactical advantage by disrupting enemy plans and preparations or in seizing stronger defensive terrain.

Factors Favoring the Spoiling Attack

Conditions which should be present for the successful execution of this form of defensive maneuver are:

1. The terrain and road net must be such that rapid movement may be made under cover of darkness in order to achieve maximum surprise.

2. The defender must be so disposed that he has the capability of moving quickly to take advantage of enemy failures or momentary weaknesses.

3. The defender must possess strong reserves which are highly mobile and contain adequate armored striking power.

4. The enemy assembly area must be easily accessible to a surprise attack. The portion of the front behind which it lies should be weakly held inviting a quick penetration or an unprotected flank should permit easy access to the area to be attacked.

Since in past history these conditions

have rarely existed or because the defender presented with these conditions was not aggressive and quick enough to take advantage of his opportunities, historical examples of successful spoiling attacks are not frequent. Department of the Army Pamphlet No. 20-233, *German Defense Tactics Against Russian Break-Throughs*, contains a report of a successful spoiling attack against large Soviet formations in December 1943. The following account is taken from this report:

General Situation

. . . At the beginning of November 1943 . . . the Russians had broken through north of Kiev, and there were indications that they intended to envelop the northern wing of Army Group South. The forces at the disposal of the First Ukranian Front were insufficient to attain this objective. The Soviets advanced 60 miles to the west, captured the important railroad junction of Fastov, neutralized Zhitomir, and encircled the LIX Infantry Corps in Korosten. But a German flank attack by armored units forced the Russians to pull back across the Teterev. Although Zhitomir was relieved, Fastov remained in enemy hands, and the siege of Korosten continued. The Fourth Panzer Army front, which had faced east before the Russian offensive, gave way and was now facing north. Both the German and the Russian flanks were open to the west. Because of their inability to close this gap, the Germans extended an open invitation to the Russians to continue their offensive in order to exploit the success they had hitherto achieved. They had a unique opportunity to execute a wide envelopment out of their assembly area north of Zhitomir. Troop concentrations and road repairs performed behind the hostile lines indicated the imminent resumption of the Soviet offensive which would first threaten the Fourth Panzer Army and subsequently the entire army group. (See Sketch Map on page 13.)

The spoiling attack—a surprise thrust into enemy attack preparations—is a rare but effective operation. Its purpose is to disorganize the enemy's assembly and thus delay and weaken his offensive capabilities

Daylight Deception

The situation called for immediate action, and the Germans therefore decided to avert the threat by striking the flank of the hostile attack preparations with strong panzer forces. The XLVIII Panzer Corps, with the 1st SS, 7th, and 1st Panzer Divisions, was withdrawn from the front and assembled behind the center of the army sector. Meanwhile, the approach routes—some of which led through marshy wooded terrain—were reconnoitered, bridges repaired, and the partisan units rampant in the forests dispersed by the security division responsible for this area. Immediately afterward, the combat elements of all three panzer divisions moved out in broad daylight and marched along the main highway through Zhitomir in order to deceive the enemy into believing that strong forces were being shifted to another sector of the front. It was later established that this deception was completely successful. In any event, these preliminary steps were actually inevitable since the movements connected with them had to be executed to enable the Germans to strike deep into the open enemy flank. Without this attempt at deception, the movements would have required 2 nights, since the approach and assembly of such a strong panzer corps could not be effected in 1 night. By carrying out the movements by

day, they could be timed so that the units reached their turn-off points along the main highway shortly after dusk. By that time half the itinerary had been covered and the movements continued without interruption. The enemy had no opportunity to observe the turning movements of the corps, first to the north, then toward the east.

Preparations for Attack

The entire movement proceeded according to plan without enemy interference. On 4 December 1943, at 0600, all three panzer divisions were poised for attack along the Zhitomir-Korosten highway. At the same time, all the GHQ artillery, a rocket-projector brigade with launchers of different calibers up to 320-mm, and an armored train were moved into position behind the left wing of the XIII Infantry Corps to the extreme end of the open flank. These preparations, as well as the concentration of strong reserves behind the XIII Corps wing, were to lead the Russians into assuming that the German attack would continue on the army left wing, exactly where it had bogged down the previous month. The Russians were easily convinced of these intentions because their own reaction in similar situations was identical. When a heavy concentration was delivered in this sector at dawn and a German infantry division launched a frontal attack immediately afterward, the enemy felt absolutely certain that his estimates were correct. He shifted strong reserves to this sector and counterattacked, only to be stopped in his tracks by the concentrated fire of 300 rocket launchers. The Russians were still completely unaware of the impending flank attack. Only after they had moved all available forces and weapons close to the front line did two German corps comprising five divisions simultaneously attack their right flank. The main thrust was executed by the three divisions of the XLVIII Panzer Corps which advanced east toward the Teterev River. Some 1st SS Panzer Division elements were to turn south and attack the Russian forces from the rear. The 7th Panzer Division was to cover the corps left flank and establish contact with the LIX Corps, which was breaking out of encircled Korosten.

Surprise Ensured Success

Completely surprised by this flank attack, the enemy offered little resistance during the first day. The mine fields emplaced by the Russians to protect their open flank were easily discovered from the air and bypassed. The entire flank was crushed and destroyed by the attack from the rear. Within a few hours, the German tanks penetrated deep into the enemy artillery emplacements, overran batteries under cover of light ground fog, and destroyed the guns. Since the ground was frozen and covered by only a thin layer of snow, the tanks were able to move quickly and according to schedule. By the end of the first day, the panzer divisions had advanced 15 to 20 miles into the enemy's flank, taken numerous prisoners, and captured all of his artillery. The LIX Corps had achieved its break-out and established contact with the panzer corps. The Zhitomir-Korosten highway and railroad line were once again in German hands. The completeness of the surprise achieved guaranteed the success of the operation. Only weak remnants of the enemy forces escaped to the east.

Enemy Resistance Negligible

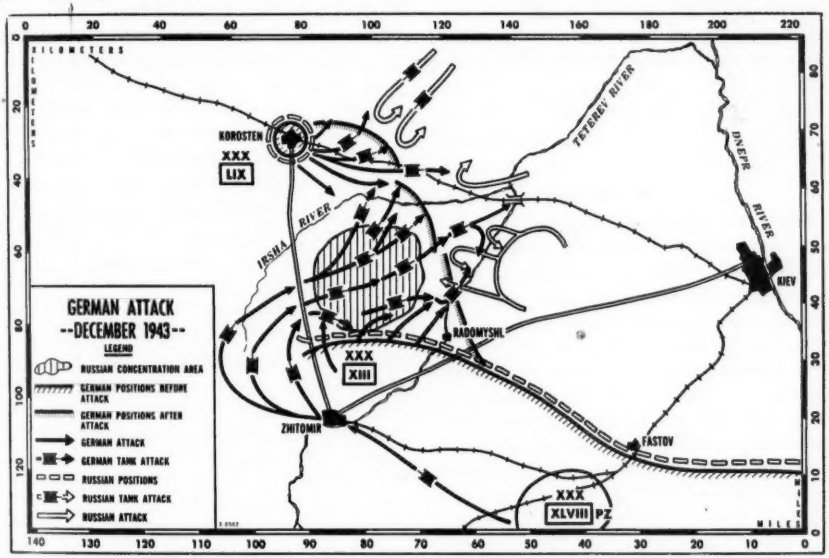
The thrust was continued during the second day, but its momentum was greatly impaired by heavy fog and a breakdown of the 1st SS Panzer Division supply system. Even though this division dropped out because of ammunition and fuel shortages, the other divisions advanced 12 more miles. The enemy resistance remained negligible. As the attack progressed, the elements of the XIII Corps gradually joined the panzer corps thrust

along the sectors in which the flank attack had swept away all enemy opposition. Farther north, however, the LIX Corps was heavily engaged and progressed only step by step.

Soviet Countermeasures

It was not until the third day that the first enemy countermeasures were felt, but the few Russian armored and infantry units thrown across the lower Teterev were incapable of withstanding the powerful drive of the panzer corps. The Russians' newly established defenses were quickly overrun and several Soviet tanks destroyed during this action. Armored points of the 1st Panzer Division reached the Teterev south of the railroad bridge. The 69th Infantry Division, operating on the right wing of the XIII Corps, crossed the Teterev at Radomyshl and joined the panzer corps advance. On the other hand, the sizable Russian forces remaining in the swampy forests along the Irsha held out so tenaciously that the LIX Corps with its two infantry divisions was unable to overcome their resistance. West of the Teterev, the enemy troops were reduced to a few bridgeheads. During the night, however, these were reinforced to a point where they nearly burst with personnel and equipment. A new enemy army attempted to reverse the tide at any cost.

During the fourth day, heavy enemy attacks struck at the XIII Corps and XLVIII Panzer Corps sectors. Most of them were checked and territorial gains were made by means of armored counterattacks. By the end of the day, however, the center of the XIII Corps was in danger of being overrun.



Bridgeheads Eliminated

The Germans now decided to eliminate the enemy bridgeheads. On the fifth day of the drive, the 1st Panzer Division and the 1st SS Panzer Division formed the jaws of a pincers movement intended to annihilate all enemy forces remaining on the west bank of the Teterev. The weak 7th Panzer Division was to protect the north flank. Desperate enemy attempts to

withstand the onslaught of 200 tanks were in vain. One bridgehead after another was crushed or reduced by the powerful drive of the panzer divisions. By noon, armored points established contact within the perimeter of the fifth and last enemy bridgehead. The bridges were blown up and the bulk of the enemy equipment, together with many prisoners, fell into German hands. The day culminated in an all-out attack by all available panzer forces and strong elements of the XIII Corps against those enemy units which had dented the German lines during the preceding day. It ended in their encirclement and annihilation.

First Objective Tally

Thus, the first objective of the operation was achieved. The surprise thrust from the defensive penetrated an area 45 miles in depth and completely destroyed one Russian army and a second one suffered such heavy casualties that it was at least temporarily rendered ineffective. Enemy casualties numbered thousands dead, wounded, or prisoners; more than 200 enemy tanks were destroyed and approximately 800 artillery pieces captured. German losses were light. The front line was shortened and now faced east; it was held solely by German infantry divisions. The XLVIII Panzer Corps was available for another mission.

The second phase of the thrust had the objective of consolidating the German lines. In order to clear the swampy forests along the Irsha of hostile forces and establish direct contact between the LIX and XIII Corps, the XLVIII Panzer Corps moved to the Korosten area and launched a pincers attack against the enemy forces in the swamps. Two panzer divisions and Korpsabteilung "E" (a provisional unit of divisional strength formed by three weakened infantry divisions, each organized into one regiment) attacked from Korosten, north of the Irsha, toward the southeast, and the 7th Panzer and 112th Infantry Divisions thrust from positions south of the river toward the northeast. The northern spearhead, advancing in open terrain along the railroad to Kiev, initially made good progress, whereas the southern thrust was slowed down by heavy fighting in the wooded terrain. Nevertheless, the two armored spearheads established contact by the second day. The marshy forests along the Irsha were still being combed when strong Russian tank formations suddenly launched a flank attack from the north. Soviet armor and infantry also moved up from Kiev. According to statements made by prisoners of war, the Russians anticipated a German offensive to capture Kiev and, therefore, committed all units available in the area. In view of their limited strength, the Germans had not planned such a large-scale operation, quite apart from the difficulties they would have had in getting through the marshy forests extending between the Teterev and the Dnepr. Actually, the objective of the surprise thrust had been fully achieved, and the intended creation of a continuous infantry front was well underway. In spite of the reckless expenditure of newly arrived armored and infantry forces, the Russian counterattack did not gain any ground. All enemy attacks were repelled after stubborn fighting. On the very first day of the clash, the enemy lost more than 80 tanks. During the following 2 days, 150 additional tanks were destroyed by the Germans, and the Russian counterattack bogged down eventually. Minor thrusts supported by tanks were directed against the XIII Corps sector but were equally futile.

Final Tally

The consolidating phase of the thrust accentuated the effects of the initial surprise attack. Two additional Russian armies were so badly mauled that they were incapable of offensive action. The acute threat in the area north of Zhitomir was thereby eliminated. A few weeks later,

the Russian Christmas offensive was launched at a less vulnerable sector of the front, an obvious indication that the enemy had been forced to change his plans.

Discussion

This account clearly indicates the advantages which can accrue to a defender who adopts aggressive action during his conduct of the defense. Current Army doctrine points out the methods which may be taken where conditions which are present favor their adoption. The defender who fails to take advantage of his opportunities completely surrenders the initiative to the attacker and increases the inertia prevalent in units which have succumbed to a purely defensive attitude.

Germans Seized the Initiative

In this instance, the German commander seized the initiative and attacked because the Soviets, through a series of tactical errors, invited an attack against their forces which, if undertaken, presented the Germans with a reasonable opportunity of success. The major Soviet error was in concentrating a large force close to the front in an area that lacked adequate all-round defensive protection. This error was further compounded when Soviet estimates and subsequent tactical moves apparently were based on a frontal attack—thus contributing to the achievement of surprise by the Germans.

Actions to Aid Surprise

The German commander, having ascertained that the Soviets were off balance and that their open flank invited a strong armored attack, took certain actions to set up the conditions of surprise necessary for a successful spoiling attack. The most important of these steps were the improvement of routes of approach for his armored formations to the vital area, the movement of strong reserves during daylight to an area which indicated a frontal attack rather than a flank attack, a diversionary attack in sufficient strength to further indicate that a frontal attack was the main effort, and the rapid movement and concentration of powerful armored forces on the exposed flank during hours of darkness.

Advantages Gained

By seizing the initiative and attacking at an unexpected time and from an unexpected direction, the German force in this instance was able to recover from a disadvantageous position and gain a superior position. The results achieved were:

1. The destruction of large Soviet forces including substantial numbers of personnel and large amounts of equipment.

2. The relief of German forces caught in a highly dangerous position.

3. The complete recovery from an unsatisfactory German defensive position forced upon them by the enemy.

4. The retention of the initiative by the German forces even though they were on the defensive—this kept the enemy from selecting the time and place of attack of his choosing.

5. The retention of the offensive spirit and fighting morale of the individual German soldier which facilitated future action.

It should be noted that the Germans attacked only when conditions were favorable and a reasonable chance of success was apparent. Unnecessary or needless expenditures of personnel and equipment in effective tactical offensive operations which do not contribute to the general success are always to be avoided. Such maneuvers contribute little to the success of the defense and serve only to wear the defender down and render him more vulnerable to a co-ordinated attack.

Conclusions

1. Defensive doctrine emphasizes the necessity for aggressive action.

2. Although the counterattack is the decisive element of the defense, offensive

action can be taken by the defender prior to a penetration whenever conditions are favorable.

3. Favorable conditions for aggressive offensive action will often be present because of errors or failures on the part of the attacker. Intelligence must be capable of detecting such errors when they occur. The defender must be disposed and prepared to take advantage of any such errors quickly.

4. The spoiling attack is one form of aggressive action the defender can execute when conditions are favorable. Since favorable conditions are a prerequisite and depend to a large extent upon enemy failures or errors, the spoiling attack is rarely undertaken. However, the results that may be achieved by a successful spoiling attack are so far reaching that the defender must be ever alert to seize the opportunity when it is presented.

5. The attacker, although enjoying certain superiorities and the initiative, may, through errors, exhaustion, indecisive maneuvers, and excessive losses, be placed in an unfavorable position. The defender then has the opportunity to move to the offensive and seek a tactical decision aimed at the defeat and possible destruction of the enemy force. The attacker left relatively undisturbed in his conduct of operations will seldom fall into such an unfavorable position. The defender must initiate aggressive countermeasures at every opportunity in order to inflict damage and cause errors. The spoiling attack is an ideal countermeasure available to a defender which may be decisive in the conduct of the defense if used properly.

NEXT MONTH

Main Articles

The German Campaign Against Poland in 1939 by Lieutenant Colonel Stuart O. Van Slyke; and *Deliberations on Airborne* by Lieutenant Colonel Robert J. Hoffman are included among the main articles.

Foreign Military Digests

The foreign digests include "Military Lessons of the Korean Conflict" from *The Journal of the United Service Institution of India;* and "A Matter of Principle" from the *Australian Army Journal.*

Books of Interest to the Military Reader

Reviews of *Submarine* by Commander Edward L. Beach, *USN;* and *The Siberian Fiasco* by Clarence Manning are included.

MAXIMUM SECURITY WITH MINIMUM FORCES

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SECURITY is one of the principles of war important to the successful application of all the other principles. The great captains and greatest writers on the subject of war have all accentuated security. Frederick the Great said, "It is pardonable to be defeated, but never to be surprised."

Later, Napoleon advised that "a general should say to himself many times a day: If the hostile army were to make its appearance in front, on my right, or on my left, what should I do? And if he is embarrassed, his arrangements are bad; there is something wrong; he must rectify his mistake." Obviously, the problem of security must be considered in still broader terms at the present time.

Jomini considered the importance of intelligence and mentioned as a prerequisite to security to "perfectly inform ourselves of the positions of the enemy and of the movements which he can make."

Clausewitz pointed out to his monarch as the first principle of defense "to keep our troops covered as long as possible. Since we are always open to attack, except when we ourselves are attacking, we must at every instant be on the defensive and thus should place our forces as much under cover as possible." Broadly interpreted, a command must take every precaution necessary to ensure its protection at all times from any conceivable type of enemy action.

Changing Aspects of Security

Many features of security have been stressed throughout the ages. Others have been accented for a period, minimized because of changed conditions of warfare, and then re-emphasized. For instance, much was written on partisan and guerrilla operations during the middle of the last century; these operations were common during the Civil War and before this in the Napoleonic campaigns against the Russians. Infiltration attacks by the Indians on unsuspecting small bodies of troops or frontier settlers were quite common during the westward advancement of the frontier. Because of changed conditions of warfare, including the types of belligerents involved, the emphasis on guerrilla action or infiltration was largely dropped in military textbooks until the reappearance of such assaults in World War II. Action by the Soviets against the German forces; Japanese jungle infiltration; the French, Belgian, and Dutch resistance movements; the Philippine resistance movement; and, finally, operations of this nature against United Nations forces in Korea have again focused attention on the need for adequate protection against these types of action. On the other hand, meas-

The major objective of an adequate security plan is to provide maximum security with minimum forces, in order to conserve manpower for the primary mission of the unit, whether of a combat or logistical nature

ures to provide advance guards, flank guards, outposts, sentries, rear guards, and reconnaissance have been taken continuously since the days of the Roman Legions.

The developments of the motor vehicle, the airplane, the tank, chemical warfare, and other improved weapons and equipment, both during and after the last two great wars, including new developments of jet aircraft, rockets, guided missiles, atomic warfare, and other surprise weapons or equipment, require a constant re-evaluation of the resources and means necessary to achieve security. However the advent of new weapons or devices does not necessarily change basic security principles, definitions, or measures.

Security Definitions

Marshal Foch asserted that security was based on the two elements of time and space and a third element comprising the resisting power of the troops. "This notion of security, which we express by a single word," he said, "divides itself into:

1. *Material security,* which makes it possible to avoid enemy blows when one does not desire to strike back or cannot do so; this is the means of feeling secure in the midst of danger, of halting and marching under shelter.

2. *Tactical security,* which makes it possible to go on carrying out a program, or an order received, in spite of chance unfavorable circumstances produced by war; in spite of the unknown, of measures taken by the enemy of his own free will; also to act securely and with certainty, whatever the enemy may do, by safeguarding one's own freedom of action."

He pointed out that a security service is imperative to ensure against surprise.

The present military definition embraces all those measures necessary to guard against annoyance, observation, and surprise by the enemy; it includes all those means necessary to gain and maintain freedom of action; and it applies at all times and may call into service all sizes, types, and bodies of troops from a small patrol or single sentry to the largest size combat or service formation.

Security Threats

With the improvement of weapons and equipment, the scope of war has broadened until a combat or service formation is faced with a wide variety of possible threats. Briefly, a command may be required to resist:

1. *Conventional ground attack.* This type of operation, either supported or unsupported by armor, artillery, or other means, always confronts the commander of a combat formation. The mobility and speed of modern attack requires that the commander of a service element consider this threat particularly from the viewpoint of fluctuation of battle lines and minor break-throughs.

2. *Air attack.* Sorties by bombardment or fighter aircraft, using either conventional or surprise weapons, endanger all types of formations.

3. *Armored attack.* Preparations are always made by combat formations to meet this assault. Service troops must be prepared against armored raids or armored break-throughs.

4. *Airborne attack, partisan or guerrilla action, or infiltration.* Attack may be by small nuisance formations or may involve large-scale operations against all types of troops, depending on the situation and the enemy capabilities.

5. *Espionage, sabotage, and subversion.* These actions have always been a menace. The present ideological trend of warfare places increasing emphasis on these measures.

6. *Attack by new or surprise weapons.* Such weapons include guided missiles; free rockets; chemical, biological, or bacteriological warfare; or atomic warfare. Any

logical weapon, action, or mode of delivery must be foreseen and guarded against.

7. *Combinations of attack threats.* Commanders must be ready for operations by the enemy using combinations of the various threats listed above.

8. *Sea-borne action.* A command adjacent to the sea or within effective range of naval forces operations will, in addition to all actions previously listed, be subject to any possible combination of naval action including raids, amphibious operations, shelling, attacks on shipping, and all the operations conducted by ground or air forces within the capabilities of a naval power.

Security Measures Always Applicable

Regardless of the type of action with which a command is confronted, certain security measures must always be taken. Those measures taken to ensure security are:

1. *An adequate warning system.* Troops will use advance, flank, or rear guards; covering forces; outposts; patrols; interior guard; appropriate intelligence and counterintelligence; and mechanical, electronic, electrical, munitions, sound, or visual warning means, depending on the situation. Service units must utilize such measures as are practical considering their strength, weapons and equipment, situation, and mission.

2. *Effective communications.* Effective signal communications must be established to control the command, direct defense activities, warn higher headquarters, and request assistance. Whenever possible, multiple and emergency means should be established to ensure reliable communications in the event of mechanical failures or sabotage.

3. *Continuous reconnaissance and alertness.* A continuous reconnaissance of the area must be maintained by reconnaissance units, dismounted or motorized patrols, aircraft, and other means. The types of reconnaissance conducted will depend upon the capabilities of the unit, considering its strength, weapons and equipment, and mission. A proper nucleus of the command consisting of certain key and striking personnel must be on the alert at all times to react immediately to any threat while providing for the organization and employment of the balance of the command. Readiness of weapons must be a requirement for all types of units. Service units must maintain weapons at hand while conducting their various service tasks, in a manner similar to that employed by the frontiermen.

4. *A striking force and reserve.* The striking force may vary from a combat formation of all arms to a small area service unit. Regardless of size or composition, the force should attempt to destroy, drive off, or contain the enemy. In all units there should be a reserve with sufficient mobility to meet the most dangerous security threat visualized. Even in the smallest unit, some of the force must be retained as a reserve. Vegetius of the Romans is reported to have said, "It is much better to have several bodies of reserves than to extend your front too much." A minimum objective of a striking and reserve force should be to hold out until assistance arrives.

5. *Passive measures.* These must include the use of terrain for protection, cover, concealment, and as an obstacle; the use of artificial works or obstacles, such as foxholes, fortifications, mines, barb wire, cyclone fences, obstruction of landing area measures, underground shelters, and demolitions and camouflage; the application of dispersion and increased speed; individual and collective protective equipment; the avoidance of contaminated or radioactive areas; and the application of disciplinary measures in the control of military personnel. Many of these passive measures will provide security of the command to certain degrees against a variety of threats. Certain other passive measures

must be evaluated against likely disadvantages accruing from their use in any particular situation.

Inasmuch as the conduct of various type operations and the details concerning the proper application of security measures to different operations are adequately covered in the various military texts, they will not be elaborated upon in this article.

Adequate Security Planning

The adoption of an over-all security plan for an area must be based on a carefully conducted security estimate. The plan must provide for the proper disposition and distribution of all combat forces and service units. It must further provide for the use of all units in an integrated defensive scheme. The plan must provide for beneficial action by all military personnel, nonbelligerents associated with the military, and residents of an area subject only to the rules of land warfare; it must include appropriate action to be taken by military government, local police, counterintelligence, and other appropriate agencies; and it must correlate all the political, administrative, economic, and military aspects of security. Napoleon summed this up when he said, "I endeavor to conjure up all possible dangers, to foresee all difficulties—military science consists in weighing carefully all possible eventualities and then eliminating, almost mathematically, chance. It is here that no error must be made, for a decimal more or less may change everything."

Boldness versus Caution

Security planning does not imply, however, that a command must bind itself down with caution. Often boldness of action achieved by proper planning guarantees security while caution does not. For example, Lee's employment of Jackson in operations toward Washington in the Yorktown Peninsula campaign of 1862 so alarmed Washington that McClellan's forces were reduced to such an extent that Lee was able to beat him in the field. Boldness is the best course of action when the means, including superior mobility, leadership, and favorable conditions of time and space, are available. Sun Tzu, discussing the art of war, is reported to have said, "Numerical weakness comes from having to prepare against possible attacks; numerical strength from compelling our adversary to make these preparations against us."

The major objective of an adequate security plan must be to accomplish maximum security with minimum forces. Manpower must be conserved for the accomplishment of the primary mission assigned to a unit whether it be combat or the operation of a logistics installation.

Conservation of Forces

Measures which can be used in security planning to reduce the manpower required by units or to reduce the use of combat units for security missions are:

1. *Make maximum use of electronics, mechanical, munition, or other types of warning devices to reduce manpower otherwise required for this purpose.* The basic criteria must be reliability of the devices and actual manpower saving.

2. *Defend strongly only the most important and vital areas.* Care in founding their plans upon the security of what is vital is common to all great commanders.

3. *Provide interior guard for only the most important and vital installations within an area.* This is primarily applicable to larger rear area installations. The defense of other less important installations must be accomplished through the incidental protection of troops present, or the use of mobile patrols or other reconnaissance means. This does not imply a relief from the responsibility for all-round defense (perimeter defense and vertical defense), but it does imply that personnel will not be dispersed or wasted on the interior guard of unimportant activities or areas.

4. *Use signal communications that are most efficient and reliable and at the same time saving in manpower.* More often than not communication responsibilities may be combined with other responsibilities assigned the same personnel.

5. *Make the maximum use of terrain and artificial works or obstacles.* Where natural terrain cannot be used to improve security and reduce the manpower required, artificial obstacles such as fences, mine fields, demolitions, and underground shelters will normally reduce the active defense forces required. The construction or adaptation of these means must, of course, be within the limitations of the mission, strength, materials, and time and space factors available to a unit.

6. *Limit exits and entrances to an area or installation to those necessary for the accomplishment of the mission of the occupying unit.* This, of course, must be tempered with appropriate freedom of action and will generally apply more particularly to a rear area installation.

7. *Increase fire power and mobility wherever possible, and compensate by extra training for inferiority in strength.* Service units and combat support units must be trained to operate as small infantry units; they must be furnished as necessary with extra protective weapons and trained in their employment; and they must be provided with sufficient mobility to cope with airborne, guerrilla, or infiltration attack.

8. *Establish a system of travel control.* Consistent with the situation and mission, military travel must be closely regulated and controlled. Occupied area residents should be restricted, except in emergencies, to travel within their home areas for work, recreation, or cultural or religious purposes; travel should be controlled by permit, pass, or other means.

9. *Establish security clearances, registrations, and checks.* As a first requisite, a verification of the security reliability of a command must be made. As soon as practicable, residents of the occupied area must be registered and appropriately cleared for security, and dangerous personnel weeded out or placed under surveillance. At unannounced times, security checks must be made to uncover undesirable security risk personnel.

10. *Eliminate bypassed resistance.* As soon as practicable after an advance or an offensive operation, bypassed enemy units still offering resistance must be eliminated. Much of the trouble that the German Army experienced in World War II on the Eastern front, and considerable difficulty experienced by United Nations forces in Korea, resulted from the organization and integration of bypassed small enemy units to form guerrilla or partisan bands.

11. *Establish effective counterintelligence.* Effective counterintelligence must be established to seize and dispose of enemy agents, saboteurs, or subversives; to gather counterintelligence information; to prevent overt or clandestine enemy activity; to ascertain civilian attitudes and political activities; and to conduct security investigations and surveys. Troops must be trained and used to assist in counterintelligence matters.

12. *Maintain rigid discipline.* The discipline of a command does much to counter enemy action and command and enhance the respect of a civilian population. This includes actual troop discipline including appearance, supply discipline and conservation, march and vehicular discipline, security discipline, and decorous treatment of the inhabitants. To quote from a volume translated from the French on the art of war, "Little need be feared from guerrillas and partisans, if detachments are abstained from, if care is taken that the men do not wander, if a severe discipline is kept up, and if we act always with considerable masses; the only rational plan in a war with invasion."

13. *Find and provide personnel who are*

familiar with the area of operations. The provision of personnel familiar with an area's language, terrain, populace, and customs for key positions in reconnaissance units, patrols, military government, counterintelligence, and intelligence will assist materially in reducing the number of men otherwise required on various types of missions. Carefully selected natives, who have been tested for trustworthiness, and properly cleared for security, will be of much assistance. Frederick the Great recognized this when he stated, "Knowledge of the country is to a general what a rifle is to an infantryman and what the rules of arithmetic are to a geometrician."

14. *Establish an effective military government.* A military government must be established to:

a. Accomplish pacification of the inhabitants of an occupied area by eliminating contraband, re-establishing efficient local government including police and other law enforcement agencies, cultivating the friendship of residents, providing work without forced labor and with adequate assurance of payment and food, restoring religious and cultural freedom, and by establishing and maintaining the confidence of the populace in the good faith of the occupying forces.

b. Ensure continued fair and common sense treatment of the inhabitants by the military forces and the military government agencies.

c. Maintain operation of appropriate short-range propaganda capable of being executed during hostilities and of continued practice exactly as expounded.

The employment of these various measures to reduce the manpower needed for security purposes will never eliminate the need for active security forces operating within doctrines enunciated in the appropriate field service regulations, but their application as appropriate will reduce many of the problems inherent in the accomplishment of the security mission assigned.

Conclusions

1. Basic security principles, definitions, or measures change slowly if at all.

2. The advent of new weapons, devices, or the rebirth of techniques requires a constant re-evaluation of the emphasis to be placed on various security measures.

3. Adequate security is dependent on a carefully prepared security plan to provide maximum security with minimum forces.

4. Many of the security lessons learned in operations in a large and hostile land area with long lines of communications must often be re-emphasized.

In the words of Napoleon, "The conduct of a general in a conquered country is encompassed with difficulties. If he is severe, he exasperates and increases the number of his enemies; if he is mild, he inspires hopes which, since they cannot be realized, cause the abuses and vexations unavoidably incident to war only to stand out in bolder relief. A conqueror should know how to employ by turns severity, justice, and leniency in suppressing or preventing disturbances."

Again as Clausewitz stated, "The means of shortening and protecting long lines of communications are very limited. The seizure of some fortresses adjacent to the position taken up or on the roads leading to the rear—or in the advent of there being no fortresses in the country, the strengthening of suitable points—kind treatment of the inhabitants, strict discipline on the military road, good police in the country, assiduous repair of the roads—these are the only means whereby the evil may be diminished, but certainly never quite removed."

Problems of a Guerrilla Leader

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

MUCH has been written about the value of guerrilla operations during World War II as a part of total war. However, little has been written about the practical problems involved in establishing and organizing a guerrilla unit in the field. This article is written with the hope that it may be of value to those who, in any future conflict, are charged with forming a guerrilla unit and to those who, having been cut off from their own forces, decide to continue fighting by forming a guerrilla band. This article is a historical example of the establishment and organization of a guerrilla unit in northern Burma. It is the author's intention to emphasize the problems involved and the lessons learned in establishing the unit, not its exploits or operational achievements.

Locale

In order to better understand the problems involved and their attending solutions, it is believed worth while to discuss briefly a few points relative to the population and the terrain of northern Burma.

Northern Burma lies in the southeastern extension of the Himalayas. Although the mountains are not as high as the main Himalaya range—10,000 to 16,000 feet—they are extremely rugged with precipitous slopes along the many rivers and streams which flow between them. The vegetation is tropical, and jungles cover the entire area including the highest hills. Prior to World War II, there were only a few cart tracks north of Myitkyina—no roads or railroads. Communication was by jungle trails, and of those only the main trails were kept open by the natives throughout the year. The area is divided from east to west by three major rivers—the Chindwin, the Irrawaddy (Mali Hka), and the Nmai Hka. North of Myitkyina the rivers impose a barrier to lateral communication since all are unfordable.

The Kachins

The largest group of natives in this area is the Kachins whose tribal organization is somewhat similar to that of our own American Indian. Their population is roughly 300,000 and they are spread over an area approximately 300 miles long and 150 miles wide, lying along the north and northeast border of Burma adjacent to China. The men spend the greater part of their time hunting and fishing, and are as much at home in the jungle as the ordinary American is on the main street of his home town. Their sense of direction

The success of guerrilla operations will depend upon sound planning in regard to personnel, logistics, and communications, coupled with an understanding of the national characteristics of the people involved

and junglecraft are uncanny. They are superb in the art of the ambush. The average Kachin is a hardworking, industrious, and trustworthy individual, even though he is primitive and lacking in education. He has a well-developed sense of humor and his simple life is a happy one. He compares in size with a well-developed 14- or 15-year-old American boy.

Kachin Resistance

When the Japanese invaded Burma it did not mean much to the average Kachin, but when the Japanese and the Burmese (central and south Burma) banded together, the hatred of the Kachin for the Burman coupled with his loyalty to the British caused him to resist the Japanese violently. This resistance was sporadic and without organization or equipment, and for this reason the Kachins suffered burned villages and mass reprisals. These reprisals, however, did not stop the Kachins' resistance efforts.

Economically, the Kachins suffered considerably when the Japanese occupied Burma, for previously they had been dependent upon the British to provide cloth, steel to fashion dahs (a long jungle knife which is used for a multitude of purposes), and, most important, salt. These items became quite scarce and it was practically impossible to purchase them in the tribal areas.

Military Situation

By January 1943, all of Burma except the northern tip was held by the Japanese. No effort had been made by the Japanese to push farther north since the area did not have any economic or strategic value. The British, to ensure a toe hold in Burma and to protect an emergency airfield at Fort Hertz, had organized an irregular force of Kachins called the Kachin Levees. At this time, General Stilwell, the theater commander, was planning to attack down the Hukaung Valley, seize Myitkyina and Bhamo, and build a road from northern India to join the old Burma Road, and thus open up a ground supply route to China.

American Detachment

An American detachment had beeen established in the theater and given the initial mission of preventing the use of the airfield at Myitkyina by the Japanese and attacking the roads and railroads leading to that area from the south. The detachment consisted of 20 officers and enlisted men—none of whom had had any previous experience or knowledge of the conduct of guerrilla operations. This was one of the first units sent to a theater by The Office of Strategic Services (OSS), and consequently it did not have the advantage of the experiences of other units to draw upon in planning its operations. Therefore, it was planning and operating on a trial-and-error basis. A base camp had been established in Assam in northeastern India and a field group located at Sumprabum in northern Burma, the headquarters of the Kachin Levees. It is this latter group with which we shall be concerned.

Japanese Attack

In February 1943, the Japanese attacked, causing the Levees to withdraw some 75 miles to the north. The OSS group which had been with the Levees withdrew with them. When the situation was more stabilized, the group was given the mission of infiltrating the Japanese lines and establishing a guerrilla unit 50 miles to the southeast at Ngumla where the local tribal chief was known to be anti-Japanese. The objectives of the group were to raise a small guerrilla force, gather intelligence from as far south as Mandalay, and harass the Japanese by sabotage and ambush. From the beginning, this group was beset with problems which would not have occurred if previous experience had been available to draw upon. The problems and the lessons learned from them will

be discussed separately, although in most instances they occurred concurrently.

Logistical Support

When the group was given its new mission, it was told that it would receive supplies overland since aircraft to drop supplies were not available. Any supplies that were needed would be furnished on call by a base camp to be established at Fort Hertz, some 125 miles to the north of Ngumla. During the move south, a courier system for passing on the supplies from village to village was to be organized. It was expected, however, that the group would live off the land except for coffee, sugar, and salt. In theory, this system was fine and would provide some secrecy to the operation since no drop planes would be seen in the area of the guerrilla camp. In practice, the system was a total failure because of the lack of knowledge of the conditions in the area on the part of the planners. The courier system was established and full co-operation was promised by the village chiefs. However, when the first shipment began to move through the system, each village chief along the route felt that a handful of salt, a few pounds of rice, a little sugar, or a little of some other item would not be missed or needed by the group. Consequently, when the shipment arrived at Ngumla, only a fraction of what was expected and needed arrived.

Cause and Effect

During the months of March, April, and May, the Kachins seldom have sufficient food. This is caused by their taking about one-fourth of their rice crop, harvested in May, and converting it into a liquor. During this 3-month period, they exist on roots and herbs which they gather in the jungle. It can readily be seen that the group was hard put to obtain suitable or sufficient food. The purchase of rice was possible, but only after agreeing to pay exorbitant prices and to complete the payment with salt and cloth at a later date. Needless to say, air supply was instituted and remained the chief means of supply throughout the operation.

The failure to understand the economic conditions of the area and to give them due consideration in planning the logistical support of a guerrilla operation can lead only to the failure of such a mission. In this instance, consideration was not given to the fact that the Kachins had been unable to obtain necessities for a considerable period of time. This led to petty pilfering which defeated the entire supply system. Further, the conditions existing in the area during March, April, and May with respect to food were not realized.

Language Barrier

The personnel comprising the OSS group at Ngumla initially consisted of one American officer and one Karen radio operator, neither of whom could speak Kachin at the outset of the mission.

The language barrier was overcome initially by the American speaking to the Karen in English. The Karen translated the English into Burmese from which language it was translated into Kachin by a third party. This obviously was a highly unsatisfactory method and one which frequently resulted in misdirection and confusion. The arrival, in August, of a Catholic missionary who had lived in the area before the war finally solved the language problem. Under the circumstances, this problem could not be avoided, however, it is one which will occur frequently when guerrilla units are formed by personnel cut off from their own forces, and every effort should be made to have someone in the party who has a fair knowledge of the language common to the area of operations. The organization of the guerrilla force at Ngumla and the accomplishment of the mission of the group would have proceeded faster and much more smoothly had the Catholic mission-

ary been available from the start. Units or groups sent out later from India did have personnel who could speak the local language.

Recruiting

No major problems arose concerning the recruiting of Kachins as guerrillas. Their dislike of the Japanese and Burmese, their keen interest in firearms, and their hereditary instinct for guerrilla warfare were sufficient incentives for them to join. Unfortunately, at this stage of the preparations for the attack down the Hukaung Valley, General Stilwell did not want any large guerrilla activity for fear the suspicions of the Japanese would be aroused. Further, the OSS detachment, still in its infancy, could not support a large force. Consequently, the group at Ngumla was restricted in size to 80 men. In recruiting this force, some lessons were learned which might be helpful to others confronted with a similar problem.

In a new and undeveloped guerrilla area, it is extremely difficult to check each man to determine where his loyalties really lie and this becomes still more difficult when a language barrier exists. Each man was screened, insofar as possible, to determine his loyalty and whether he was joining with an active desire to fight. A basic error was made in recruiting in that the group leader, without an adequate knowledge of Kachin traits, personalities, and past history of the individuals, personally interviewed each candidate. The errors which resulted from this selection showed up in the form of a revolt during training by five men desiring higher pay and later by the refusal of a few men to leave Ngumla for patrol or ambush. In retrospect, it would have been better to have selected one or two individuals about whose loyalty and desire to fight there was no question, and to have allowed them to examine the applicants under the supervision of the group commander. Although this system is not perfect by any means, it did produce excellent results when finally adopted at Ngumla.

The selection of subordinate leaders is a difficult task at best, but it becomes increasingly difficult when the men under consideration are unknown. The system adopted involved the rotation of men as leaders during the training period and selecting those who showed the greatest aptitude. This method of selection was proved during combat with very few exceptions. In more civilized areas, other criteria also can be applied such as education and the man's position in the area.

Security

Security was not a problem among the Kachins since the bulk of the population was anti-Japanese. However, in addition to guerrilla patrols, a security screen was established throughout the area. Chiefs of villages along avenues of approach to the guerrilla camp were hired to report any movement of Japanese forces, particularly in the general direction of the camp. Although the Japanese never made a serious attempt to reach the camp during this formative period, the protection was there. Later, the first report received enabled the group to ambush successfully a 20-man Japanese patrol. The point to remember is that without providing an adequate security system you may be caught unprepared.

Communications

Communications, insofar as the quality of radio sets was concerned, created no problems. A small compact radio was developed by the detachment which weighed 50 pounds, had a range of 400 miles, and was operated by either battery or a hand generator. However, both power systems had their faults. The batteries would not stand up in the dampness of the jungle while the hand generators required two to three Kachins to crank them for operations of long duration. The major communication problem which confronted

the group at Ngumla was that there was only one radio and one native radio operator.

This handicapped the group as communication with patrols and subordinate guerrilla bases was dependent upon runners. At times, the information was 3 to 4 days old before it arrived at the base camp. This problem was corrected, in part, by the addition to the group of three radios with native operators. It did not solve the communication problem entirely since all the radios had crystal controlled transmitters, no two of which operated on the same frequency. As a result, it was impossible to establish a radio net in which all the group's radios could report. Eventually, a large radio set, a gasoline generator, and two American operators were dropped at Ngumla. Crystals also were provided which enabled all the field radios to operate on the same frequency and report into the same radio net.

Rapid communication is a must for guerrilla operations, not only for reports of engagements, but also for the rapid receipt of information. With the increased mobility and rate of movement of present-day military forces, guerrillas cannot depend upon slow and laborious means of communication. In establishing a guerrilla group, one of the first tasks is to acquire adequate means of communication.

Medical Care

One of the most pressing problems was the provision of medical care. Only the American officer had had any training in first aid, and that was rather meager. Medical supplies consisted of quinine, sulfa pills and powder, and an assortment of bandages and adhesive tape. The medical facilities were almost as primitive as the jungle in which the group was operating. Fortunately, no serious wound or injury was received by any member of the party. However, several instances occurred in which the need for a doctor was essential. For example, a cargo transport en route to China was shot down near the camp and two of the crew were recovered. One of the crew had a shattered foot but with the limited medical knowledge available it soon became infected and gangrene developed. Only through the courage of an Air Force doctor, who volunteered to jump into the camp, was the foot saved and possibly the man's life. After a week, the group was infiltrated back through the Japanese lines and flown to India from Fort Hertz. A Navy doctor arrived in September and adequate medical care of the unit was ensured from that point on.

Adequate medical care must be ensured from the commencement of the operation. Without adequate medical care available, the men will be reluctant to engage in guerrilla operations. In this situation no criticism is intended, as it was impossible for the detachment to provide competent medical support at this time. However, the problem is an important one and should be considered during the planning phase.

Conclusion

The problems discussed are by no means the only ones which confronted the group at Ngumla. Many which occurred were peculiar to the area and, therefore, are not considered to be within the scope of this article.

However, the following lessons were pointed up during the operations and are considered to have general application:

1. The lessons learned concerning recruitment, while in most cases peculiar to the area, all pointed out the importance of knowing and understanding the traits and characteristics of the indigenous population. Once this knowledge is acquired, it must be applied continually to the task at hand. Indigenous personnel of proved loyalty and ability should be utilized to assist in the selection of recruits and leaders because no outsider can expect to gain the knowledge required for this task in a matter of months. The selection of in-

digenous leaders is of vital importance to the success of the recruiting program, as the proper selection of leaders may ensure the quality and loyalty, as well as the number, of the natives recruited.

2. Logistical support, to include medical care, is an important factor and one which deserves careful consideration during the planning stage. The success of the entire operation may depend initially upon the ability to equip newly recruited natives and to provide the supplies and care essential to maintain American personnel in an underdeveloped foreign country.

3. Although guerrilla operations are possible despite the complications of a language barrier, far more progress is possible if adequate measures have been taken to eliminate this handicap. The full-time services of a trustworthy interpreter who can speak English as well as the native language of the land are considered essential to effective guerrilla leadership.

4. While it is possible to function with poor communications equipment and unskilled personnel, this disadvantage results in the loss of valuable time and less effective operations.

5. Deficiencies in logistical support, medical care, interpreter personnel, and communications equipment and personnel should be corrected during the planning phases. Military planning deficiencies are costly in terms of time and efficiency, and in the case of guerrilla operations, they may prove fatal to the entire operation.

It is important that the Army continually re-examine itself both in terms of its mission and its capacity to perform that mission within the social, economic, and political framework of this democracy.

The Army must prepare itself for possible global war against an enemy who outnumbers us on the ground—an enemy capable of marshalling his resources to strike without warning at a time and place of his own choosing. If global war does not suit his purpose, this enemy can also incite "local wars" anywhere along the global boundary between the Free and Communist worlds. The Army can choose neither the time nor the place of war, nor the type of war to be fought. Ours must be a flexible plan of defense.

Secretary of the Army Frank Pace, Jr.

We cannot expect too much of machines alone. The finest equipment in the world is literally worthless without technicians trained as soldiers—hardened, seasoned, and highly skilled in its maintenance and operation.

General J. Lawton Collins

REFLECTIONS ON THE ROLE OF INTELLIGENCE OFFICERS

Brigadier General Paul M. Robinett, *USA-Ret.*

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

MILITARY intelligence is an exacting art. The personnel assigned to this activity should be tested and molded for the very important task of penetrating through fogs of skillful deception into minds of enemies, or of prospective enemies, for the purpose of determining their intentions toward our country, and their capabilities of fulfilling those intentions in the political, economic, and military fields. Only by thorough preparation can qualified personnel be trained for the most effective service in the vast intelligence system which must maintain a continuing study of the enemy or of possible enemies. However, such personnel, regardless of their capabilities, cannot accomplish the best results unless they are directed by commanders who are thoroughly conversant with military intelligence, who are capable of guiding intelligence personnel, and who are able to utilize the products of their labors.

No Crystal Ball

Intelligence is not a matter of crystal balls, ouija boards, or sphinxes. It is unfortunate that the sphinx has become the insignia worn by intelligence reserve officers, for it emphasizes secretiveness at the expense of enlightenment—a common shortcoming in the American Army. The most energetic collecting, the most ingenious collating, and the most brilliant evaluating are to no purpose whatsoever unless the results of these processes are disseminated promptly to all concerned, and unless logical decisions result therefrom. This dissemination is a practical business which will challenge the intelligence officer's mental and physical capabilities to the limit.

Combating Confusion

Someone has said that war is confusion. It is a fact that most successful commanders have been adept in bringing order out of confusion or gifted in improvisation. The ground forces are particularly subjected to confusion, because they are always spread out and loosely joined, and frequently cannot act with preconceived plans.

Confusion is frequently accompanied by rumors which are always the precurser of panic. Those who have not experienced battle should constantly bear this in mind; they will then be prepared mentally for what is sure to arise. One wise commander used to drill his troops in bring-

Because the United States today is inextricably involved in the affairs of every country in the world, now, as never before, our Army needs loyal, resourceful, industrious, and highly trained intelligence personnel

ing order out of confusion. To some this seemed rather extreme, but later it was found to be the most valuable lesson they had learned in preparation for World War II. As staff officers and assistants to commanders, intelligence officers should be on their guard against the evils of confusion and rumors.

Intelligence Personnel

Intelligence personnel work quietly and behind the scenes. They are additional minds for their commanders and are rarely given much credit. They may, however, be damned a plenty if they make a mistake, for intelligence work, by its very nature, must be done without fanfare and performed with a sense of responsibility.

An intelligence officer, with troops, assists his commander by multiplying his eyes, ears, and brain. Frequently, he will be able to ferret out conditions which can be corrected before harm has been done. This can best be accomplished by arranging his affairs so that he is not tied to a desk and thereby is able to get out among the troops and see things as the troops see them. He may then explore the terrain and the enemy situated thereon, as well as the obstacles which may either help or hinder our forces in the accomplishment of their mission. To achieve the greatest success in military intelligence, the intelligence officer must be able to ferret out and understand the problems of our own and the enemy situation, as well as the influence of weather and terrain on both situations. One's natural talents can be improved, however, by strict attention to duty, by close application, and by enthusiasm for the work.

An intelligence officer is the assistant to his commander or to a senior intelligence officer. But in either case he is a staff officer, not in position to command in his own name, but to bring up for decision matters in his own field which must be acted upon. This will require great initiative, resourcefulness, and force because it is a regrettable fact that some commanders, not understanding military intelligence, are inclined to regard it as of secondary importance. Military intelligence is not often as highly regarded as it was by Major General Stuart Heintzelman, one of our most brilliant officers of World War I, who said, "I will make my best G3 my G2, because I want the enemy to be represented by the best I have got. Accordingly, I will take the second best G3 as my G3." General Malin Craig, a wise and discerning officer who became Chief of Staff of the Army, used a slightly different system. He always appointed a prospective G3 as G2, and in time moved him to the G3 position. Lieutenant General Geoffrey Keyes and General Thomas Handy are two of the men who had such training.

Be Realistic

Inasmuch as the intelligence officer is involved in an intellectual pursuit somewhat detached from the more practical activities of a troop commander, he must be on guard against becoming a dilettante. He should take advantage of every opportunity to perfect himself in the organization, tactics, techniques, weapons, vehicles, and communications of the unit or force with which he serves. Only in this way can he maintain a realistic mental attitude in the conduct of his work. This is particularly important if he should be assigned to the intelligence section of a higher headquarters or to the Intelligence Division of the Department of the Army.

There is a tendency for intelligence officers in the higher echelons to gravitate away from the realities of their work and to lose an understanding of their own Army and its needs, a tendency which leads them into interesting but nonessential activities, and which, in turn, makes it impossible for them to detect weaknesses in the enemy that can be exploited. Some

key intelligence personnel who had spent years studying the German Army before World War II had, for example, become so completely detached from the United States Army and so totally sold on everything German that they were incapable of noting the slightest weakness which could be exploited. Because of their overestimation of German capabilities, they led the War Department General Staff astray, with positive harm to our national interests. They thus overspecialized themselves and failed to serve the best interests of our country. Others had so completely underestimated Japanese capabilities that prior to Pearl Harbor they pronounced that empire on its last legs many times. One hardly need recall that Japan lasted quite a time after that disaster.

Intelligence Background

It is important that an intelligence officer be thoroughly grounded in history and geopolitics. With a thorough knowledge of history he will be able to understand the present and, therefore, will be better prepared to project his estimates into the future. The United States is now inextricably involved in the affairs of every continent, nation, colony, or satellite in the world. American leadership has lacked facilities and time to prepare for its responsibilities and, therefore, frequently lacks knowledge upon which to base sound decisions. Intelligence officers serving in the higher echelons of command carry a heavy responsibility and should strive to acquire the knowledge that is required by their chiefs.

Evolution of Civilization

History is filled with the records of dead civilizations. Not one of these worthy of the name failed to produce distinguished statesmen, military men, scientists, and scholars. Each reached a peak of cultural eminence and shortly thereafter declined and eventually was destroyed. In each, the military spirit was predominant at the beginning and the profession of arms drew to it the best human material available. Gradually, the conditions changed until military service was lightly regarded, if not avoided or opposed, by the intellectual and elite of the nation concerned. Ultimately, there was a turning to mercenary practices in which military vigor was considered a commodity which coin could buy.

The laws governing the rise and fall of nations are applicable to the United States as they have been to all other political organizations that have gone before. Our country cannot avoid the fate of others unless it overcomes the basic errors committed by them. Each intelligence officer should acquire knowledge of the past which will facilitate the solution of current problems and the perpetuation and strengthening of the military spirit in the United States, so essential to our future well being.

Since the duties of intelligence officers pertain to the staff, it might be well to enumerate the qualities of an ideal staff officer. Such a checklist should prove of worth to those striving for self improvement.

The Ideal Staff Officer

An ideal staff officer is selected because of his professional attainments and character. He serves best by exercising reasoned loyalty, intelligence, initiative, resourcefulness, industry, energy, objectivity, selflessness, and love of duty to his country. His actions should be influenced by the knowledge that he, as a military man, may be called upon to execute the plans and policies evolved by himself while on the staff. He neither uses flattery nor is influenced by it. He is motivated by patriotism and will express, at appropriate times, differences of opinion with higher authority. By doing so, he stimulates thinking in the staff and contributes to the formulation of sound decisions. However, once a decision is made, he will carry it through as though it were his own. Thus it is that discipline is not endangered and our coun-

try's interests are better served. He consults the past and weighs the present against the future, and thus avoids repeating old mistakes. When engrossed in the problems of the moment he still finds time to contemplate and study the questions of the future. With his associates, he forms a composite and trained brain which checks and counterchecks on all factors that influence the effectiveness of the command and on those things that effect the enemy. He plans for and anticipates emergencies and is quick to bring order out of confusion. He keeps pace with progress in the field of science and in the American Army as well as the armies of potential enemies. He keeps his mind open to suggestions and is quick to adopt new concepts and procedures. His job is to assist the commander and to help the troops. Everything he does should lighten their burdens and make them more effective.

High-Echelon Empires

An ideal staff officer will resist the empire-building temptation, remembering the words of a very great staff officer, Major General von Steuben, "My observation is that where one person is found adequate to the discharge of a duty by close application, it is worse executed by two and scarcely done at all by three," and the observation of an outstanding Army commander, General William T. Sherman, who said, "A bulky staff implies a division of responsibility, slowness of action, and indecision, whereas a small staff implies activity and concentration of purpose."

The intelligence sections of theaters of operation and higher headquarters have become notorious empire builders. The Military Intelligence Division of the War Department in both World War I and II mushroomed quickly into a vast agency. At the same time, new agencies entered the field with powerful political backing. Eventually a constellation of intelligence agencies functioned at the top, competing with each other for personnel and money. Jurisdictional competition arose as each fought for its place in the firmament. Accordingly, there are many who believe that American intelligence effort in both world wars represented a violation of the principle of economy of means. Incidentally, it also became a haven for certain individuals making jobs for themselves.

Regardless of motive, these jobs enabled some to avoid the dangers of battle and to establish records of military service for publicity purposes in post-war political campaigns. This proclivity for empire building can be controlled only by elevating stout-hearted individuals, possessing a knowledge of men gained after long years of service with troops, into positions of authority in the intelligence service. This type would put quality above quantity, cut out all nonessentials, and prevent the wartime intelligence organization from becoming a retreat for *coffee coolers*—an old Civil War term which today might be expressed as *coffee drinkers.*

Our assets lie in natural barriers, in allies, in our own productive capacity, and in the good sense and spirit of our people. Let us preserve these things. If such qualities will not prevent war, as they well may, they will in the end bring us victory.

Admiral William M. Fechteler

An Evaluation of Finland's Armed Forces

By Major Svein Haadem, *Norwegian Army*
Student, Command and General Staff College

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

FINLAND has always been a nation of good soldiers, and since she gained her independence from the Soviet Union after World War I, she has kept a large and highly trained defense force. The country's military achievements, during the Finnish-Soviet War in 1939-40 and the operations with Germany in 1941-44, are well known and are considered by experts to be impressive.

Strategic Location

Seven years after the end of World War II, and at a time when the free world is engaged in an effort to build up a military organization able to withstand aggression from the East, Finland, considering her geographical position, takes a very important place in the strategic picture of northern Europe. The attitude of this country, in the event of war, is of great importance to the other Scandinavian countries, especially Sweden and Norway. A land attack upon these countries must pass through Finnish territory.

In order to estimate the value of Finland's armed forces at the moment, it is necessary to consider her social, economic, and political situation. We must also consider such military factors as the strength, the standard of training, and the equipment of her armed forces.

The Economic Situation

One factor, above all, has influenced the economic and political situation in Finland since 1947; the payment of reparations for war damages to the Soviet Union. This has placed a heavy burden upon her people, but, through a tremendous effort on their part, the last of these payments was made in September of this year. According to the peace treaty (The Peace Treaty of Paris, 10 February 1947), Finland has made payments to the Soviet Union of vast numbers of ships, machines, tools, and large quantities of timber and pulp. Now, with the last payment completed, the Finns look forward to devoting their energies to the benefit of their native land.

As a result of these payments, the standard of living in Finland has been somewhat lower than in the other Nordic countries. Although food and clothing are available, the prices are exceedingly high—too high for the people to buy enough of what they really need.

The Finnish administration, since the

Finland's geographic position has a very important place in the strategic picture of northern Europe. Her strength is of vital concern to the other Scandinavian countries as well as to free Europe as a whole

end of the war, has had great difficulties in trying to regulate prices and salaries in order to avoid inflation. As in most European countries, the demands for houses, apartments, and rooms greatly exceed their availability.

During the period of reparation payment, the average Finnish citizen has not paid much attention to foreign policy or military matters. His problems have been to attain a decent standard of living and to assist in completing the payments of reparation to the Soviet Union as soon as possible. The military budget during this period has been very small. (Before World War II, the armed forces received an average of 16 percent of the budget; now they receive 4 percent.) Any increase of military force has been out of the question.

The Future

The future period, from 1953 on, will not see a change in the problems but will see rather a concerted effort to eliminate them. Finland's resources will be used to improve the standard of living of her people. The main problem for the average citizen will be to obtain better living and working conditions.

As for military preparations, the solution of this problem seems to be far away. Just how far away is hard to say, but a fair estimate must be that many years will pass before the Finns will again develop a large military machine. A change in the present foreign policy, including military aid from abroad, is, of course, not to be overlooked, but it is a separate question.

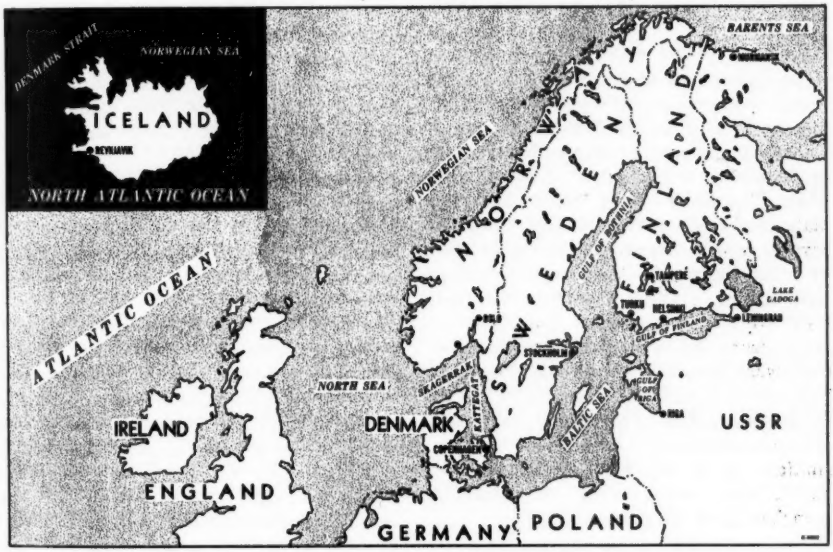
The Political Situation

The political situation in Finland has been, and remains, unstable as there is no solid majority behind the Government. The biggest political parties are the Social Democratic Party and the Farmers' Party (Agrarian), with a coalition of both parties presently in power. Other parties of importance are the Communists and the Conservatives. In the 1951 election, the Social Democratic Party seated 53 representatives in the Parliament (Eduskunta), the Farmers' Party seated 51, the Communist Party seated 43, the Conservative Party seated 28, the Swedish Peoples' Party seated 15, and the Liberal Party seated 10. The Communists are strong in northern Finland and also in some industrial areas such as Helsinki, Turku, and Tampere in the southern part of the country. As in other European countries, the Communists gained many followers during the early years of peace. In the 1948 election, for instance, the Communist Party received more than 375,000 votes, which was approximately 20 percent of the total vote. Even if this number were to decrease considerably, the Communists still would be a dangerous element with political influence and an active, well-conducted organization.

Finnish Resistance

To what extent the Finns can resist Soviet pressure or attack will be dependent largely upon the political situation in the country at the time that pressure is exerted. According to a mutual pact between Finland and the Soviet Union, the question of whether there exists a threat of war is to be settled by the two governments. Theoretically, Soviet assistance to Finland would be possible only with the approval of the Finnish Government. What the reaction would be to a Soviet threat to march into Finland in order to guard the country's freedom and integrity is problematical. However, it is feared that the present Kekkonen administration, like many past Finnish administrations, would yield to such a threat and open the frontiers to Soviet troops. However, other administrations would not permit the Soviet to enter without a fight. Should the Soviet Union launch an attack without warning the threat of a coup by the Finnish Communists, carried out with typical Communist ruthlessness, would be possible. Such an action would have a fair chance

of success. In this case the Finns could only manage a token resistance with sporadic guerrilla action from scattered groups of patriotic elements who would not tolerate the Communist coup. Only if the Soviet demand were vigorously denied by Finland, backed by a strong government, would the armed forces of that country render any organized military resistance. The amount and intensity of that resistance would depend upon the strength and capabilities of those forces.



Armed Forces Statistics

According to the peace treaty, Finland is permitted an Army of 34,000 men, an Air Force of 60 planes, and a Navy with 4,500 men. The Navy has no vessels of any size and the 60 planes in the Air Force are all obsolete by present military standards. Most of the aircraft are German *Me 109* (Messerschmitt) fighters which are too slow for modern warfare. Repair work and maintenance of these planes present an additional problem because spare parts are now unobtainable. It is only a matter of time before these planes will be relegated to a museum.

The Finnish Air Force

Finnish pilots have hardly seen a jet plane and have never flown one. For the past few years, the Finns have been building a fighter-trainer plane, the first of which, the Valmet *Vihuri*, is being produced now. This means that the training facilities of Finnish pilots have been greatly improved but modern jet planes able to match the Soviet *MiG* are unavailable.

The Finnish Army

The Finnish Army is in a much better position than its sister services, because manpower is available in great quantities and weapons are available even though they are of World War II vintage. A considerable amount of weapons and equipment was left behind by the Germans when they withdrew from Finland in 1944. Although the Finns were limited to an

Army of 34,000 men, about 20,000 of these spaces have been utilized each year to provide military training for civilians. Economic as well as political reasons have limited this compulsory service to 6 months. From 1946 until the present time, more than 110,000 young Finns have been given some military training in the Army.

Army Equipment

Equipment, of a sort, is available for Army use, however, all weapons and equipment are relics of the last war. None of the new implements of war such as rockets or radar are available for training purposes. The peace treaty required all war materials to be collected and stored in several central depots. These depots were of great interest to the Soviet Union as well as the Finnish Communists. However, with the passing of time, this interest decreased to a point where the materials were decentralized so that they could be used for training and available in case of an emergency. This factor is of the greatest importance, as it opens the possibilities of an organized Finnish mobilization and resistance if an attack is launched upon the country.

The Finnish Officer Corps

The Finnish officers would be in a difficult situation in the case of an emergency. On one hand, they have pledged their loyalty to the legal government regardless of that government's decisions and on the other hand they would want to exercise their own judgment concerning actions which would be to the best interest of their country.

The majority of Finnish officers are clearly anti-Communists, therefore, any decision to yield to a Soviet attack would seem absurd. It is expected that the greater part of the Finnish officer corps would be in favor of fighting back.

Military Education

The Finnish Army officers have a reputation of being very able leaders in the field and the present military authorities are trying hard to maintain this standard. The normal military education of regular officers begins with a 7-month course at The Officers Cadet School where the cadet receives a commission as a second lieutenant in the reserve corps upon graduation. Officers who complete the 2-year course at the War Academy are commissioned as full lieutenants in the regular army.

The highest military education in Finland is provided at the Finnish Command and General Staff College. The course here requires 2 years of study under highly qualified instructors.

Conclusion

The present armed forces of Finland are not considered sufficient to defend a country so vital to the security of Scandinavia and to the Western world; and many years will be required to develop a force similar to that which was mobilized in 1939. The present Army is capable of a limited resistance in the form of delaying actions which could delay an aggressor for several days, or weeks at best. The Navy and Air Force would be of negligible value in the event of war. However, guerrilla warfare and acts of sabotage could be counted upon to disrupt lines of communication. The guerrilla operations will be conducted with great skill and daring by patriotic Finnish soldiers and civilians under the able leadership of Finnish officers. In brief, the present world situation has placed Finland—"The Bulwark of the West," as the Finns call themselves—in a sensitive and extremely dangerous situation, as the closest independent nation at the gates of the Soviet Union.

Realistic Umpiring - - Map Maneuver Mainspring

Lieutenant Colonel Raymond C. Ashby, Jr., *Infantry*
Headquarters, United States Army, Pacific

THE map maneuver provides as realistic an approach to combat conditions as can be obtained in a classroom situation. It provides an excellent vehicle to review and apply tactical and administrative fundamentals as they apply to command and staff functioning, and to develop team play.

Commanders of all components at most levels find that the map maneuver is an essential part of their training programs.

Yet, the mere fact that these training exercises are scheduled and conducted does not ensure the desired result—*realistic training*—which all commanders must constantly strive to attain in their training programs.

The basic steps in the preparation and conduct of this type of applicatory exercise were covered in the article entitled "Map Maneuvers—Their Preparation and Conduct," which appeared in the November 1951 issue of the MILITARY REVIEW. Under a subheading of the article—Umpires—reference is made to Field Manual 105-5, *Maneuver Control*, as the basic text and guide for all umpires. However, this manual is specifically applicable to field maneuvers where "aggressor" is used as a field training aid, and as such is only applicable in a very broad sense to umpiring map maneuvers.

Map Maneuver Criticism

The most frequent criticism by players in a free map maneuver is directed at the umpires for their false or unrealistic interpretation of player action. A typical example of a criticism which well might have been voiced by a commanding general of a player division is as follows:

An Example

We moved into defensive positions during the night to secure our objective. Two regiments of my division have been in contact with the enemy since daylight, and my tank battalion and reserve regiment are located to counter any normal enemy action.

At 0700 the enemy launched an attack on our positions with an estimated four battalions of infantry supported by tanks and artillery. He achieved some local successes by 0900, but was unable to hold what he had gained and withdrew, apparently to reorganize, at 1030. During this engagement, it developed that the enemy had only two regiments and his tank battalion available.

A force estimated to be a motorized regiment moving toward our south flank was observed by visual reconnaissance at 1000. This regiment was attacked by air at 1030. Pilots of the attacking aircraft reported about 30 vehicles destroyed or damaged before they were driven off by enemy air.

At 1100 one of my artillery observers in a division airplane spotted this column moving off the highway into an assembly area within range of my division artillery. He called down the fire of two light battalions and the medium battalion for 10 minutes. Observed casualties and damaged vehicles along the highway were great.

The success of a properly prepared map maneuver is dependent largely upon the application of sound doctrine and the fundamentals and techniques of command and staff action on the part of all umpires involved

Yet, now at 1200, my south flank regiment, in good defensive positions, is being driven from these positions by this same unit only an hour after it was hit by the artillery.

My staff has double checked on all orders to subordinate units and the subordinate commanders have reported their movements, new locations, and actions throughout the operation, so I know where my division is disposed and the condition of the subordinate commands. My intelligence has been derived from good information reports, most of which have been verified by one or more different sources.

They say this is a free maneuver. It was probably planned weeks ago to have this good terrain fall into the hands of the enemy regardless of what action my division had taken. My staff has worked hard and their planning has been sound. I hate to see their efforts nullified and their enthusiasm dissipated by obviously poor umpire action.

An Analysis

If this is the true situation, it is obvious that the players in the other cubicle are being given an unrealistic picture. They have been allowed to move a large unit by motor into an assembly area within range of the opposing artillery, organize for an attack in a very short time, and attack, with success, a unit of equal size.

In this case, just and deserved criticism can be made of the umpires for action which reduced the training value for both players and umpires by:

1. Failure to apprise one division of the results of the air and artillery attack on its motor column and assembly area.

2. Failure to compute time and space calculations properly for the attacking regiment—assuming that it was able to attack after it had sustained air and artillery casualties. (The regiment attacked less than 1 hour after the artillery had fired on the column moving into its assembly area. Field Manual 101-10, *Staff Officers' Field Manual: Organization, Technical, and Logistical Data,* calls for 30 minutes for organization and movement in the new area, after a column has closed and the troops are dismounted, plus 60 minutes for final preparation before the attack.)

3. Failure to evaluate relative strengths of units properly by permitting a regiment, depleted by losses in men and equipment, to force a relatively fresh regiment from good defensive terrain.

4. Failure to act realistically.

5. Failure to effect proper staff co-ordination.

Proper umpire co-ordination, coupled with a realistic evaluation of the players' actions and orders in this situation, would have given the defending division players a feeling of accomplishment, and confidence in their plans and staff action; and would have brought home to the attacking division the errors of its operations.

Solving the Problem

How can proper umpire co-ordination be developed to obtain a fair evaluation of player actions, and to portray this evaluation to the players realistically?

The first step in solving this problem is to provide an organization and to delineate responsibilities to the various members comprising the organization.

An organization for umpires which has proved sound at the Command and General Staff College is shown in Figure 1.

Umpire Organization

The mission of this umpire organization is to keep the maneuver alive by means of realistic messages to the players advising them of developments and logical changes in the situation.

The general responsibility of the umpires is to represent all units and persons concerned with the operation—except the headquarters represented by the player groups. This responsibility is further delineated within the umpire group as follows:

Chief Umpire

The chief umpire and his staff act as co-ordinators of the Blue and Red assistant umpires. The chief umpire also acts as army and corps commanders for both Blue and Red forces.

Umpire Chief of Staff

The general duties of the umpire chief of staff and his relations with the chief umpire and the remainder of the staff are the same as those prescribed for any chief of staff. His most important function is to ensure for the chief umpire that the actions of the Blue and Red umpires are co-ordinated. To accomplish this co-ordination, he should hold frequent brief staff conferences with the umpire co-ordinating group to acquaint them with past major events and proposed activities.

G1, G2, G3, and G4 Co-ordinating Umpires

Subject to the supervision of the chief umpire, the G1, G2, G3, and G4 co-ordinating umpires co-ordinate the actions of their corresponding numbers on the Blue and Red umpire groups.

Artillery Umpires

Subject to the supervision of the chief umpire, the artillery umpires interpret the artillery support ordered by the players to evaluate the effectiveness of the fire support, as well as inform the units under fire as to the effectiveness and the intensity of the fire. In co-ordination with air umpires, they represent fire support co-ordination centers at echelons other than the player echelon.

Air Umpires

Subject to the supervision of the chief umpire, the air umpires interpret the air support requested by the players and interject such requested missions as could logically be accomplished. In co-ordination with artillery umpires, they represent fire support co-ordination centers at echelons other than the player echelon.

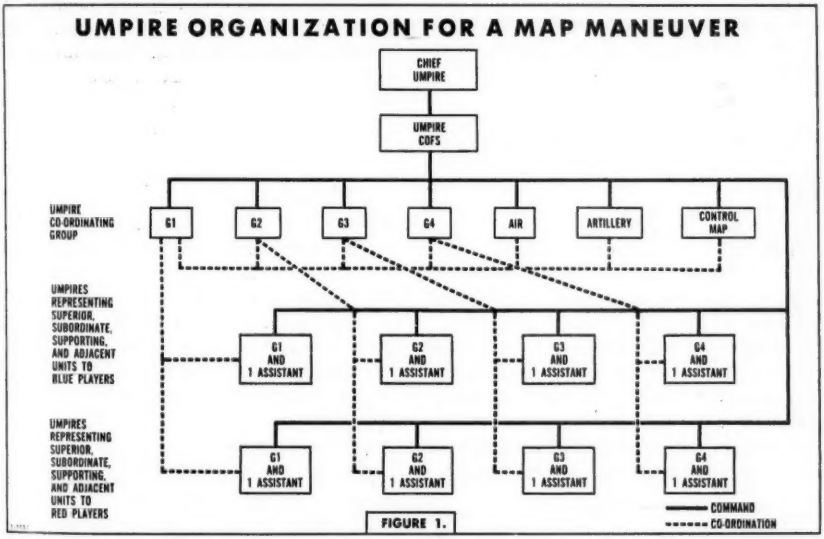


FIGURE 1.

Control Map Umpire

The control map umpire maintains the control map.

Blue and Red Umpires

The Blue and Red umpires represent commanders (except army and corps) and staffs of superior, supporting, subordinate,

and adjacent units of the Blue and Red player groups respectively, and such other persons as the chief umpire may direct. In these capacities, the umpires move all units and installations as ordered by the players, and send frequent realistic messages to the players, thereby keeping the players informed as to logical developments in the situation and necessitating constant co-ordination within the player headquarters. To accomplish this, the umpires confer and consult with each other to co-ordinate their efforts and to avoid contradictions.

Types of Maps Used

The following maps are maintained to assist the umpires in carrying out their missions:

Control Map

There is only one control map upon which all major matters are co-ordinated. It must show the operations situation of both the Blue and Red player groups, and any major administrative or logistical matters which have a direct bearing on the maneuver play. This map is maintained by the control map umpire. This map may be used by the air umpires in determining the air play of the maneuver.

G1-G4 Map

The G1-G4 map complements the control map and shows the administrative and logistical situations of both Blue and Red units. This map is maintained by the G1 and G4 umpires who will also assist the control map umpire in posting major administrative and logistical matters on the control map.

Blue and Red Operations Maps

The Blue and Red operations maps are maintained by Blue and Red assistant umpires. Any information of major, general interest on these maps must be reflected on the control map. In case of any discrepancies or contradictions, the control map governs.

Blue and Red Administrative Maps

The administrative maps are maintained by the Blue and Red assistant umpires. Any information of general interest on these maps must be reflected on the G1-G4 map. In case of any discrepancies or contradictions, the control map governs.

Umpire Procedure

Having provided an organization for the umpires and having delineated the responsibilities of those concerned, the second step in solving this problem of developing proper umpire co-ordination is that of providing the umpires with a procedure for operation.

A Typical Example

A procedure which will promote the desired co-ordination in the umpire organization previously described, and which will ensure realism, will be illustrated in the step-by-step sequence of actions taken to the hypothetical situation which follows. A sketch of a typical umpire cubicle has been included (Figure 2) to assist the reader in following the procedure. The encircled numbers within the Figure represent the initiator of action.

Step 1.—Based on the estimates of the situation by his staff, the Blue player commanding general makes his decision to commit a regimental combat team (RCT) to attack Red defensive positions. This causes the Blue G3 player to issue an order to the RCT commander. This order is sent to the RCT commander, who is represented by one of the Blue G3 umpires.

Step 2.—The Blue G3 umpire, representing the RCT commander, knowing the present dispositions of the regiment and its attachments, determines the best course of action to accomplish his mission and determines the time at which he can launch his attack.

Step 3.—Having completed step 2, the Blue G3 umpire co-ordinates with the G3

umpire, who is familiar with the latest dispositions of the opposing forces, concerning the initial results expected from the attack.

Step 4.—The G3 umpire informs the chief of staff umpire of the impending action, and, upon receiving approval from the chief of staff, informs the Blue G3 umpire to continue as planned. The G3 umpire then informs the Red G3 umpire (representing the unit which will be attacked) of the initial action to take place, and informs the control map umpire of the projected action and the time it will take place so that he can post the information on his map. (Steps 3 and 4 can be accomplished together by a short conference between the umpires involved.)

Step 5.—The chief of staff umpire coordinates the G1, G2, G4, artillery, and air umpires concerning the action to ensure that realistic reports pertaining to intelligence information and personnel and equipment losses are submitted to both player groups by the Blue and Red G1, G2, and G4 umpires. (This is one of many conferences the chief of staff umpire holds with the umpire co-ordinating staff to ensure that they are kept abreast of the present situation and the probable future actions resulting from the attack.)

Blue and Red G1, G2, G3, G4, artillery, and air umpires should prepare realistic messages as subordinate commanders and staff officers to be dispatched at the proper time to their respective player groups. (For example, the Blue G3 umpire prepares messages to include the unit's arrival in the attack position, the time of launching the attack, and the initial progress of the attack. The Red G3 umpire prepares messages to include the actions of the Red unit to counter the attack, requests for artillery fire to reinforce his supporting or attached artillery, and has the air umpire submit requests for air support if adequate targets are presented.)

Step 6.—The Blue G3 umpire informs the artillery umpire of his expected use of his attached artillery, and if he requires air support he has the air umpire

SKETCH OF TYPICAL UMPIRE CUBICLE

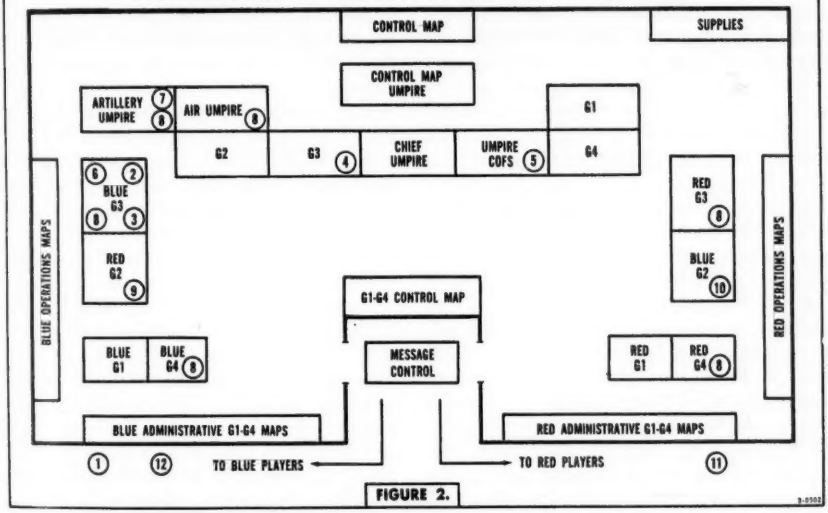


FIGURE 2.

as S3 (Air) forward a request to the division.

Step 7.—The artillery umpire, as commander of the artillery unit attached to the RCT, informs the Blue division artillery commander of his planned positions for the attack.

Step 8.—At the time of the attack, the various umpires begin to send their prepared messages to the player groups.

Step 9.—The Red G2 umpire, as regimental S2, notes the Blue action on the operations map and reports logical and realistic information to the Red players.

Step 10.—The Blue G2 umpire, as regimental S2, notes Red counter moves and reports logical and realistic information which could be obtained during the action.

Step 11.—As the information begins to reach the Red players, it should cause the player staff to continue its estimate of the situation and to take action to counter the attack.

Step 12.—As information reaches the Blue players, it should cause the Blue staff to further evaluate the situation to determine what future action or counter moves should be undertaken to exploit the situation or to forestall Red counter action.

(During the action, reports sent to the Blue and Red divisions by the Blue and Red G1 and G4 umpires and the artillery umpires should result in requests for replacements of personnel, equipment, and ammunition.)

Using this procedure to ensure umpire co-ordination, the umpire failures previously listed would have been avoided, the Blue commanding general would have had no complaint, and the Red commanding general would have learned that the intelligence estimate of the enemy situation, which he used initially to arrive at his decision to move by motor column, was faulty and resulted in heavy losses to his forces requiring reorganization. He would have realized the necessity for sound planning.

The success or failure of a properly prepared map maneuver rests squarely upon the umpires' shoulders and their role is not an easy one. Only by applying sound doctrine and practicing the fundamentals and techniques of command and staff action can the umpires accomplish their missions.

Thus, to accomplish their missions and to achieve *realistic training* in the map maneuver, the umpires must be properly organized and thoroughly oriented in their assigned duties; they must take aggressive and logical action as subordinate units of the player group; they must keep the player groups informed of their actions as superior, supporting, subordinate, and adjacent units of the player groups; and they must *co-ordinate* their actions.

Victory is won only by a proper combination of various powerful weapons—primarily infantry, artillery, armor, and air properly supported by the other arms and services. It is as important to recognize the importance of the battle team as it is to recognize that much of the success of the team depends on the support it receives.

General J. Lawton Collins

Control of Civilians, Refugees, And Displaced Persons

Lieutenant Colonel Erland A. Tillman, *Corps of Engineers*

THE control of civilians, refugees, and displaced persons is one of the many problems which confronts the commander of large forces in time of war. While it is not directly connected with the tactical handling and the administrative and logistical support of his forces, he must solve the problem successfully or it may assume such large proportions that it will seriously interfere with his mission. For example, it is possible for civilians to so clog the roads that they affect the ability of the military forces to operate successfully. Probably the most conspicuous instance of this was in the spring of 1940 when Germany invaded the Netherlands, Belgium, and France. Refugees fleeing the combat area so congested the roads of northern France that the movement of French military forces was seriously hindered.

Early in the Korean action, large numbers of refugees fleeing south before the invading North Korean Army made the task of the defending South Korean and United Nations forces even more difficult. They hampered movement and were a constant source of danger in that enemy agents and partisans used this means of infiltrating our lines.

A Growing Problem

In any future war, we may expect this problem of control to be a serious one. Modern war, with its great destruction, has achieved such proportions that civilians naturally seek to leave the combat area to increase their chances of survival. This they will do of their own volition. Add to this the possibility that an advancing enemy may drive the civilians before him into our lines in order to congest our highways, increase the number of homeless people we must care for, and provide a mass of humanity in which his agents and sympathizers can infiltrate our lines, and it becomes apparent that the task of handling and caring for these people will undoubtedly be enormous.

Such a problem will involve the highest levels of command, and if more than one nation is involved it will even require decisions and actions on intergovernmental levels. However, what about the relation of this problem to the actions of divisions, corps, and field armies? What must the commanders of these organizations do to handle this problem? This article will endeavor to explore and delineate this question.

The Groups Defined

Even though all or nearly all of the people with whom we are concerned are civilians, they fall into three broad groupings which require different care, control,

The presence of refugees and displaced persons in the combat area is a serious and growing problem which major unit commanders must solve effectively if they are to be freed of this hindrance during combat

and handling. For the purpose of this article, let us define these groupings:

1. *Civilians* are those people who are still living in their homes and carrying on their normal pursuits, even though on a restricted and altered basis. They must always be considered as a potential augmentation to the other groups.

2. *Refugees* are those people who are not outside the national boundaries of their country, but who are temporarily homeless because of military operations, or who are at some distance from their homes for reasons related to the war.

3. *Displaced persons* are those people who are outside the national boundaries of their country by reason of the war and are unable to return or to find homes without assistance, or who are to be returned to enemy territory.

During World War II, the popular conception was that all displaced persons were people who had been brought from their home countries to provide cheap "slave" labor for the German economic system. This popular definition of the term *displaced persons* was occasioned by the German national policy of transplanting millions of people from one country to another for that purpose. In a future war, this condition may or may not exist, depending upon the area of operations involved and the policies of the enemy concerning the exploitation of civilian labor in satellite and hostile countries. In any event, there undoubtedly will be displaced persons, since any refugees who leave their country become displaced persons by so doing.

The problem of caring for and controlling displaced persons is generally no different from caring for and controlling refugees. The main difference is that local populations are more willing to absorb and take refugees into their homes than displaced persons. Nevertheless, for the purpose of this article, unless specifically stated otherwise, the term refugees will be understood to include displaced persons.

Objectives

The objectives of the control of civilians and refugees by the military can undoubtedly be stated in a number of ways, but however stated they include the following:

1. The prevention of any hindrance to military operations which might be occasioned by the massing of uncontrolled movement of refugees.

2. The prevention and control of outbreaks of disease among civilians and refugees which might threaten the health of the military forces.

3. The relief, as far as practicable, of conditions of destitution among refugees.

4. The setting up of an organization to effect the rapid and orderly repatriation of displaced persons.

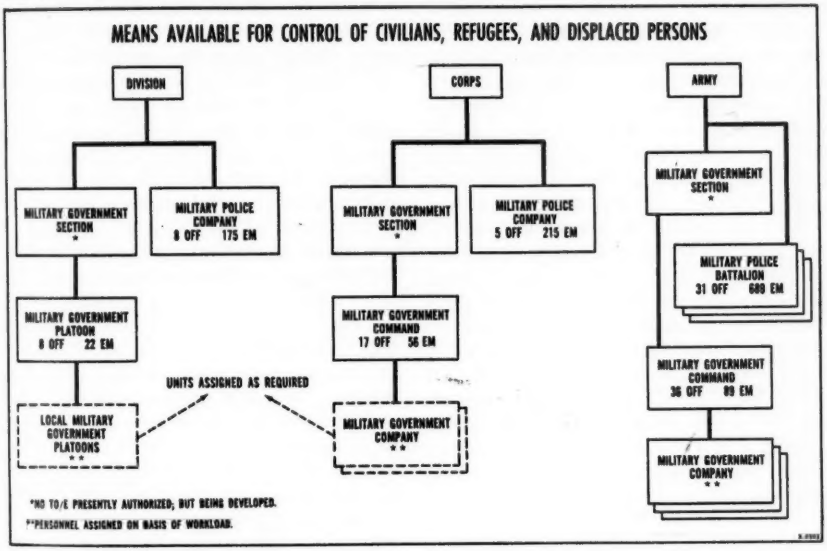
Division, corps, and army commanders are vitally concerned with the first three of these objectives, and army commanders may on occasion be concerned with the fourth. However, the fourth objective is primarily the concern of the theater and possibly the communications zone commanders.

Control at Division Level

It is in the division area that the mass movement of refugees can cause the most disruption. It is here that their impact on military operations can be the greatest if they are not properly handled and controlled. This is the area in which most of the roads are needed for military movement. It is here that the first impact is felt from refugees who are fleeing before the enemy or who are being driven into our lines by the enemy. It is here that the transition of most people from the status of civilians to refugees will occur if positive action to prevent it is not taken. Despite this, it is at the division level that the least number of military personnel can be spared to exercise control over civilians and refugees. If combat troops must be used for this purpose, the normal opera-

tional effort of the division is thereby reduced.

The division commander has the following military personnel for possible use in controlling civilians and refugees: the combat troops of the division, the service and supply troops of the division, the division military police company, the military government personnel attached to the division, and any other units attached to the division by higher headquarters. All of these have duties to perform.



The combat troops, of course, are primarily concerned with the execution of the combat mission of the division.

The service and supply troops must perform all of the tasks necessary to supply the division and attached units and maintain them as an effective fighting machine. They are designed to do this, but if required to perform other tasks they must do so at the expense of their primary missions.

The military police company must maintain law and order among the military personnel, regulate and control military traffic, man the straggler control line, and guard prisoners of war. This leaves them little time and effort to control the civilian population unless it can be performed as part of their other duties.

Any units other than military government units attached to the division are attached for a specific purpose and generally are not available for controlling civilians and refugees. Therefore, most of the task of controlling civilians and refugees must be performed by military government personnel. This is a logical assignment. However, what military government personnel does the division have to do the job? (See organizational diagram above.)

Military Government Activities

The military government staff section must plan, co-ordinate, and supervise all of the military government activities of the division. In addition to the problem which we are considering, these include the restoration or continuation of law and order among the civilian populace; the re-

establishment of some form of local government or the direction and control of existing local governments; the repair of utilities and the continuation of civilian medical facilities so that epidemics will not break out; and the control of the distribution of civilian supplies or the distribution of military relief supplies—in fact all of the actions necessary to carry out the commander's responsibilities under international law and to meet the needs of military necessity. The local military government platoons are furnished to the division to perform these military government functions in a designated area to which they are assigned and remain in the area reverting to corps control as the division moves forward. The division military government platoon is furnished to the division to assist the regimental commanders in exercising military government functions in areas assigned to them; to exercise military government functions in areas retained under division control for which no local platoon is yet available; and to perform other military government tasks of a recurring nature. It is among the latter that the problem in this article can be considered.

Sound Policy Needed

The primary aim of the division commander, so far as controlling civilians and refugees is concerned, must be to exercise this control in such a way that the civilians and refugees will not be a hindrance to military operations and to accomplish this control with the use of the least possible number of military personnel who are needed for military operations. Since the only military personnel that can be used while still accomplishing their normal duties are the military government personnel, and, at times, military police, plans for controlling civilians and refugees must be based upon making the maximum use of local civilians, agencies, and facilities. Of course, the division commander's policies, decisions, and plans must be in consonance with the policies and directives of higher headquarters, but these will normally allow a fair degree of latitude on his part.

Courses of Action Open

The possible courses of action open to the division commander in controlling civilians and refugees are not numerous. Concerning civilians, he may freeze them in place, evacuate them, allow them to move either freely or under certain restrictions, or employ a combination of any of these. In the case of refugees, he may require them to stay in local communities, place them in camps, evacuate them, allow them to continue their movement either freely or under certain restrictions, or employ a combination of any of these.

Civilians pose the least problem to the military and are the most easily controlled when they can be frozen in place. They are then at home where they have shelter and some degree of security. They normally have some food, clothing, and fuel supplies, and thus are able to take care of themselves. It may be necessary to augment their supplies with military relief supplies, but the amount involved will be smaller than if they become refugees. However, it is often difficult to freeze civilians in place unless they can be convinced that they are better off in their homes than they would be leaving them to join the masses of refugees. Even if this is done, it is necessary to enforce the freezing by imposing travel restrictions which prohibit movement outside a designated radius.

It is not advisable to evacuate civilians unless military necessity demands it as evacuation is a big task and provision must be made for the evacuees in the new area to which they are moved. They must either be superimposed on communities in the rear or placed in camps. In either event, the use of military effort and supplies will be required.

It is not advisable to allow civilians to

move from their homes either freely or under certain restrictions for they become refugees when they move, and provision must then be made for them in the rear.

Refugees cannot be frozen in place without special provision being made for them. If they are required to stay in local communities, either the local civilians must be required to take them in and provide for them, or camps must be provided for them with the attendant shelter and supplies being furnished by the military. The same difficulties and expenditure of effort and supplies are encountered in the evacuation of refugees as in the evacuation of civilians. Allowing refugees to continue their movements freely is not satisfactory. If free movement is allowed, refugees will use the roads and will interfere with military operations. Therefore, some restriction on movement is necessary. At one extreme this may involve only the designation of routes and the use of traffic control posts to ensure that these routes are used and that roads needed for military traffic are kept free of refugees. At the other may be the establishment of detention points with supervised and controlled movement from one point to another.

In the light of the foregoing, let us consider the division commander's problems and his decisions and plans under three different conditions—when the division is attacking, when it is defending, and when it is executing a retrograde movement.

Division in the Attack

During the attack, the division is moving forward, and new territory is coming under its control and with it new civilians and refugees. In friendly territory, the number of these persons will be large. In enemy territory, the number will not be so great, because many of the people will flee before our forces. At first, the division will have no organized control over the people in the territory it is gaining, but during the period that actual combat is passing over the area the people in it will seek cover and protection wherever it can be found. It is imperative that provision be made for establishing and exercising control over the civilians and refugees as quickly as actual combat has passed.

The objectives should be to freeze the civilians in place, thus preventing them from becoming refugees, and to keep any refugees off the roads needed for military traffic. These can best be accomplished by having combat troops disseminate proclamations, prepared in the indigenous language, which require civilians to stay in their homes and all refugees to stay off the roads. Military government personnel must follow with or close behind the advancing combat troops to take over governmental control. They must quickly establish law and order, re-establish the local police force, and issue supplemental proclamations which delineate curfews, passes, travel restrictions, travel permits, and the like. Every effort must be made to freeze the civilians in place, and this can be accomplished through the utilization of the local authorities and the division military police, by requiring each civilian to obtain credentials in his home town; by establishing road blocks; and by not allowing travel beyond a designated radius from home. Refugees and others without proper credentials will be taken into temporary custody and not allowed to travel without suitable clearance.

Treatment of Refugees

What provision should be made for these refugees? Having the local communities provide for them is the best solution provided that the local communities are capable of doing so. This is true even if a minimum of military supplies has to be provided to assist the civilian communities. Seldom will the division be able to provide camps for them; therefore, if they cannot be provided for by the local communities, they must be allowed to move to the rear.

The division cannot provide military transportation for this movement, so it must be provided by higher headquarters, or the refugees must move under their own power. Movement in controlled groups is preferable to free movement, but in any event the movement must be on desig-

Two refugees arriving at a displaced persons camp in Germany during World War II.

nated routes to keep open the roads which are needed for military traffic.

Of course, this movement of refugees to the rear does not solve the over-all problem; it only relieves the division of the burden by shifting it to the corps. Any movement of refugees laterally into adjacent division zones cannot be tolerated.

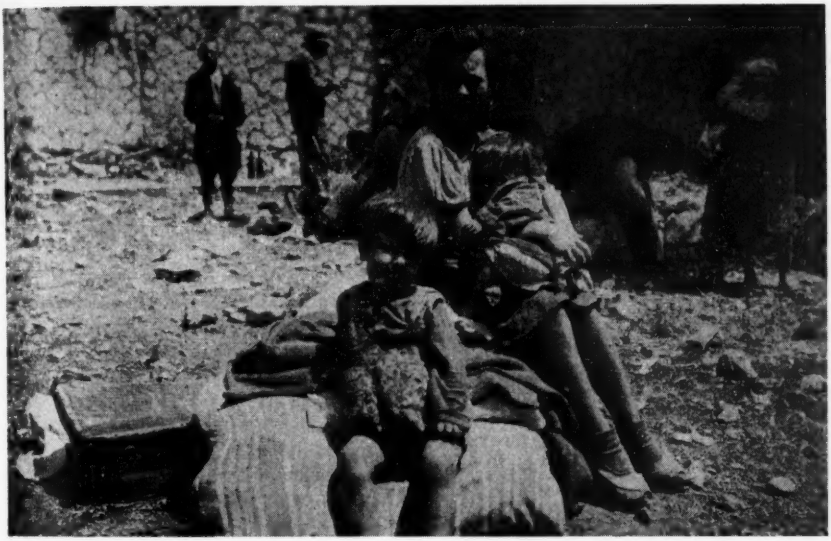
Preventive Medicine

As soon as facilities for control are established, provision must be made for disinfecting civilians and refugees and inoculating them for contagious diseases. Large masses of refugees moving about the country or gathered together in large groups are a constant threat of epidemic disease, especially when sanitation facilities are usually totally inadequate. Civilian medical personnel should be used to the maximum in carrying out these inoculations, but the necessary medical supplies will probably have to be furnished by the division.

Division in Defense

During the defense, the division problem is somewhat different. The division is not gaining new territory and will have established some degree of organized control over the people in its area. Depending upon the length of time the territory has been under friendly control, military government units will have re-established local governments in varying degrees; local police forces will have been re-established; and utilities and other public services will have been reinstituted or will be in the processes of being re-established. However, most important, the policy of freezing civilians in place will have been communicated to the populace; a system of curfews, passes, travel restrictions, and travel permits will have been instituted; road blocks will have been established and will be manned by either local or military police; and a system of handling refugees will be in operation. If the territory has been under friendly control for only a short time, many of these arrangements may not be complete, but it will be a simpler task to continue developing them than it was to initiate them during the attack. If the territory has been under friendly control for some time, little difficulty should be encountered in continuing the arrangements already established.

One of the problems likely to be encountered during the defense will be the control of refugees who enter our lines either because they are fleeing before the enemy or because they are being driven through them by the enemy. In either event, the number of refugees may greatly exceed those encountered during the attack. However, the division has an advan-



Civilians become refugees when they leave their homes, whereas refugees who leave their own countries are considered to be displaced persons. All such people present a problem to combat commanders. Above, a waiting refugee family in Italy. Below, displaced persons in Germany waiting for transportation to DP camps.—Department of Defense photos.

tage in that a system for handling them has already been established. This system should be continued, augmenting the personnel operating it as necessary with local civilians. Thus, depending upon the situation existing in the territory involved, the refugees should be handled by requiring the local communities to provide for them or by moving them to the rear on designated routes.

Evacuation of Civilians

Military necessity may create another problem during the defense by requiring the evacuation of civilians from certain areas. Such areas should be held to a minimum. Seldom should the area of complete evacuation be larger than from the combat outpost to the rear of the front-line regimental reserve positions. It may be necessary to effect a partial evacuation of an additional area to the rear of the positions prepared by the division reserve. Even in the completely evacuated area it probably will be necessary to allow some local police, firemen, and utilities operators to remain. If so, these personnel should be issued special passes.

What is to be done with the people who are evacuated, and how is the division to accomplish this evacuation? The evacuees can be moved to other communities in the rear of the division area or in the corps rear area, and these communities can be required to care for them. They probably will be willing to do this if they are able to do so. The evacuees can be moved to camps which the division establishes in the division rear area or which the corps establishes in the corps rear area. The camps must be located in areas not needed for military installations. This solution is not as sound as the first because it requires the expenditure of large amounts of military effort and supplies. Upon their request, some of the evacuees can be allowed to go to stay with relatives or friends living in rear areas. The division must exercise control over the evacuation and can use military government personnel for supervising the movement. The evacuation should be announced by proclamations and posters, and its execution should be coordinated with the regimental commanders responsible for the areas concerned so that it will not interfere with their plans and activities. Maximum use should be made of local transportation, but if sufficient transportation is not available, it must be augmented by the division either with organic transportation or with transportation obtained from higher headquarters. Local police should be used to the maximum in assisting in the control of the evacuation, but they must work under the direction of the military, and the division military police undoubtedly will be required to assist in this direction. It must be remembered that the evacuation of civilians cannot be allowed to interfere with preparations for the defense, so previously designated secondary routes must be used. Detailed plans must be prepared for the evacuation if it is to be accomplished successfully without undue interference with other division activities. A minor point, but one which must be considered and provided for, is the evacuation of livestock from farms in the area being evacuated. They should be evacuated to other farms immediately in rear of the area being evacuated.

Division in Retrograde Movement

When the division is executing a retrograde movement, the problem of controlling civilians and refugees becomes more important and more difficult. They must be kept off all roads to free the roads for military movements. At this time, all of the resources of the division are needed to accomplish the combat mission, and any use of combat or service troops to assist in handling civilians and refugees may be fatal. Therefore, the problem must be handled by military government personnel assisted by the local authorities.

In a retrograde movement, as in the de-

During combat, civilians and refugees can so clog the roads that they hinder and restrict the operations of the military forces. Above, South Korean refugees streaming along the road leading away from the combat area during the Korean conflict. Below, Sicilian refugees clogging the roads during their flight to safety.—Department of Defense photos.

fense, the division has the advantage that it is not taking over new territory from the enemy and so has already established its control over the territory; has promulgated and announced its policies and regulations concerning civilians and refugees; and has established its agencies, installations, and procedures for handling them. These should be continued in force. The civilians in the territory under friendly control can continue to be frozen in place by rigid enforcement of existing travel regulations. The important thing is to keep word of the retrograde movement from the civilians so that they do not become panic-stricken and start a mass movement.

The big problem is to control and handle large numbers of refugees who may be fleeing before the enemy or who may be driven purposely into our lines by the enemy. The problem here is the same as when the division is on the defense except that refugees must be disposed of more quickly, combat and service troops cannot be spared to assist in their control, and fewer roads can be used for their movement to the rear. Here again, the best solution is to require the civilian communities to absorb and care for them if they can. If they cannot, the refugees must be moved quickly to the rear. This movement must be controlled, must be over the few routes which the military can spare, and must be to areas far enough in the rear so that the processes will not have to be repeated as the division withdraws. This latter requirement obviates the possibility of establishing camps for refugees in the division area and necessitates that they be moved into the corps rear area. The need for division transportation in the preparation for and execution of the retrograde movement makes it necessary that any military transportation needed for the movement of refugees be obtained from higher headquarters. This will be difficult to obtain, and the maximum use must be made of available civilian transportation and of the refugees own motive power.

Enemy-Refugee Relationship

If the enemy is driving refugees into our lines, it is better to move them to the rear than to leave them in forward communities where they again will be available for the enemy to drive into our lines. The civilians that we must leave in place will provide the enemy with enough personnel for this purpose without increasing this number by leaving refugees behind. In fact, under these conditions, if time is available before the actual retrograde movement starts, it may be advisable to move civilians to the rear. However, since these people will then become refugees and will have to be cared for in rear areas, the policy concerning what is to be done should be established by higher headquarters.

Key Civilians Evacuated

If civilians are to be frozen in place, it will be necessary to evacuate certain key civilians and their families—people who have assisted our military government by holding key positions in the local government, people who have been particularly outspoken in public against the enemy, and people of great potential value to our military effort. The evacuation of these people must be accomplished at the last possible moment in order not to alarm the remainder of the population. However, lists of these people should be prepared in advance showing their locations. These lists should be based upon the recommendations of the division G2 and the military government officer. When the lists have been prepared, applicable portions should be distributed to the military government or combat commanders having area responsibility, with instructions that upon division order the people included on the list, provided they are willing, are to be taken from their homes and moved to a designated assembly point where the

division will take over their movement to the rear. The division military government officer must arrange for necessary transportation and personnel to control their movement to the rear.

At the last possible moment, the military government units in the various areas must move to the rear, upon division order, leaving assurances with the local officials left in charge that it is their intention to return as quickly as possible.

As the division moves to the rear, the area which has been under the control of the corps will come under the control of the division as will the local military government units in charge of this area. Through these units, the division will repeat the process described above. However, in order that the transition from corps control to division control may be accomplished smoothly—early, direct, close contact must prevail between the corps and division G1s and military government officers, and their prior planning must be done in detail.

Control at Corps Level

The corps commander must continue control of civilians in the areas which he takes over from the divisions as their rear boundaries are moved forward. The corps cannot permit the divisions to be hampered by large masses of refugees and, therefore, must assist the division by taking the refugees off their hands when necessary.

Corps Means

The military means used by the corps are similar to those of division. As in the divisions, combat and service units cannot be spared for this purpose except in cases of emergency. Therefore, dependence, once again, falls upon the military government personnel and the military police at the corps level. The corps has more military government and military police personnel than the division, but it also has a larger area to control. Moreover, these units have other functions to perform, just as their counterparts at the division level. Therefore, it is essential that the corps follow the division plan of making full use of available civilian officials and police personnel in exercising control over civilians and refugees.

The corps has an advantage in that some control normally has been initiated by the divisions before the area comes under corps control. The divisions usually have instituted a policy, and this policy can be continued without much difficulty.

The Corps' Greatest Problem

It is in the handling of refugees that the corps encounters its greatest difficulty. Any refugees in the corps rear area must be provided for and controlled or they will clog the roads, disrupt transportation, occupy needed areas, and generally interfere with military operations. As has already been stated, if refugees cannot be absorbed by the civilian communities in the division area, other provisions must be made for them. Since divisions will seldom have the means to provide camps for them within the division area, they must be moved into the corps rear area. Here the corps must require the civilian communities to absorb them, must control and expedite their movement to the rear into the army service area, or must provide camps for them. Any of these courses of action requires considerable planning and management on the part of the corps if it is to be administered successfully.

The best solution is to require the civilian communities to take in the refugees and care for them, if they are able to do so. Accomplishing this requires that the capacity of the various communities be determined, and that the refugees be moved to the communities in accordance with their capacities.

If the communities cannot absorb the refugees, the second best solution is to move the refugees to the rear into the army service area. The corps can ill afford to expend the effort necessary to

establish large refugee camps without army assistance. Therefore, the camps are established by army in the army service area. This reduces the distance which any required supplies must be moved, and permits larger camps with resultant greater efficiency in operation. However, the move requires that the corps designate the routes to be used and control the refugees to assure that they use these routes and not others which are required for military purposes.

Transit Camps

The corps will also very probably have to establish transit camps along the routes to be used by the refugees in transit. These camps serve as facilities for security screening of refugees, accomplishing inoculations and health checks, and providing accommodations for those refugees who become ill. They are not intended to provide accommodations for long periods of time.

The only remaining task for the corps is the establishment of camps in which the refugees can be retained and cared for. From the corps point of view, this is the most difficult problem.

However, if it must be accomplished, suitable teams should be provided by the army to operate the camps. In establishing these camps, the corps should use existing facilities to the greatest extent possible and should construct only those facilities which are required. This, of course, is an added burden that must come out of the total construction effort which the corps has available. Civilian and captured supplies should be used for personnel in these camps wherever possible, but military relief supplies will be used to make up the balance required.

Control at Army Level

The army commander establishes the policies concerning the civilians and refugees to be followed throughout the army. These policies are based upon the broad directives of higher headquarters. In addition, the army commander must not allow civilians and refugees to interfere with the operations of his division, corps, and army troops. He must provide the divisions and corps with the necessary logistical support to handle them, and within the army service area he must provide the necessary personnel as well as the supplies which are essential for their care, and most of the military transportation required for their movement.

As at the division and corps levels, any military personnel employed in controlling civilians and refugees, other than military government personnel and those military police who can do so in addition to their other duties, must be used at the expense of the army's combat mission. The army has a large area of responsibility, therefore, it has more military government and police personnel than either the division or the corps. However, the control of civilians and refugees by these units is in addition to their main duties. Once again, maximum use must be made of local officials and police in handling this problem.

As at the corps, the army has the advantage that military government has been established and civilians have been under military regulations and policies. These regulations and policies must be continued and vigorously enforced by the military government personnel and the military police with the assistance of local authorities.

Refugees will cause the greatest problem. The courses of action available for handling them are the same as at the corps and division, and the solutions are desirable in the same order. The army's advantage is that civilian communities when located in its service area should be able to care for a greater number of refugees than when located in forward areas recently overrun by combat. This system will be aided to some extent since both the corps and the division probably

will have required these communities to absorb large numbers of refugees. It is at the army level that large camps for refugees generally will become feasible. If they are established, suitable teams for their administration should be obtained from the theater. Maximum use should be made of existing facilities in establishing them; but, even so, some additional construction generally will be required with the attendant expenditure of military effort and supplies. If possible, refugees who cannot be absorbed by civilian communities should be evacuated into the communications zone where they can be cared for more easily, and where they will interfere less with military operations.

It is from the army service area that returning railroad trains can first be used for this movement. However, movement by train must be planned and controlled in advance. It is necessary for such movements to have train commanders, medical personnel, guards, and feeding stations en route.

International Boundaries

It is at army, or in the movement of refugees from army to the communications zone, that the problem of international boundaries may first assume prominent proportions. No country is willing to receive masses of refugees, who then become displaced persons, from other countries and assume the responsibility for their care and control. While actual combat is being conducted in close proximity to or astride international boundaries, the exigencies of the situation may be such that the nation involved accepts the necessity of allowing displaced persons to enter its territory. However, as the area of combat moves forward, this condition soon ceases. The nation involved then requires guarantees that it will not be responsible for more displaced persons brought into its territory. If it is still necessary that displaced persons be allowed to cross the boundary, it usually must be accomplished under an agreement whereby they enter as a definite military commitment. The military forces, under the commitment, are responsible for the care and control of these persons and ultimately for their repatriation. Of course, this responsibility is assumed by the highest level of command and is normally carried out by the communications zone. The practical solution is to make every effort to keep the refugees in their own country.

Conclusions

During combat operations, the control of civilians and refugees is of great concern to the commanders of field combat units. These civilians and refugees cannot be allowed to wander freely, interfering with military operations, constituting a means of cover for enemy personnel, and providing a constant threat of epidemic disease. The best solution at the three echelons is to freeze civilians in place and to require the civilian communities to absorb the refugees to the limit of their capabilities. If the latter action does not provide for all refugees, their movement to the rear over designated secondary routes must be controlled, or camps must be established for them. Maximum use must be made of local authorities, local supplies, and local facilities in controlling both civilians and refugees.

The Air Training Command

This article was condensed from an article written by Major Allan R. Scholin, USAF, which originally appeared in the July 1952 issue of PEGASUS. The views expressed are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

TODAY the Air Training Command (ATRC) is in better shape than ever before to fill the Air Force's tremendous appetite for skilled personnel. It is production, not training, that is the current limiting factor in Air Force expansion. The opposite was true during much of World War II.

However, while ATRC has solved this particular problem, others have taken its place.

Briefly, the major problem before ATRC now is to take people of the same physical and intellectual ability as those who flew and maintained *B-17s* and *F-51s* and train those people to work with today's more complicated equipment.

Design engineering for the *F-86*, for example, took six times the man-hours used for the *F-51*. But, despite the added complexities, one man still flies the *F-86* and one man still handles its organizational maintenance.

A gunner in a World War II bomber crew had to be able to see, figure deflection, pull a trigger, and keep his gun from fouling. Today's aerial gunner is an electronics specialist who may not actually see either the gun he is firing or the object at which he is firing.

The capacity of the human mind and body to adapt to new conditions is a phenomenon long since reported by philosophers and theologians. The task of ATRC is to tap into this capacity by translating scientific advances into terms and techniques which large numbers of essentially average individuals can come to understand and practice.

It is a service maxim that military life is 90 percent training and 10 percent application. This is true in the sense that most military activity is aimed at improving unit effectiveness. However, the latter depends upon an assembly of specialists, each of whom has previously acquired a skill through some form of individual training.

Thus the Stategic Air Command engages constantly in training operations to improve the effectiveness of all its echelons. However, personnel of the Strategic Air Command, like those in all other Air Force commands, are initially trained as individuals by the Air Training Command.

In comparison to other elements of the old Army Air Corps, training was a minor activity. Equipment was less complicated in those days and the air arm was made up largely of career men who, once trained, stayed on to ply their trade for several hitches.

Expansion of the Air Force in World War II imposed a tremendous requirement for trained men. The aircraft industry had expanded before Pearl Harbor to fill orders from Britain and the other nations fighting Germany, Italy, and Japan. Thus they were in a better position to multiply their output than was the Air Force's training establishment.

To meet urgent needs, pilot training time was reduced, eventually to a low of 7½ months. In technical schools, individuals were trained in only one phase of a job. Both pilots and mechanics often were graduated from school without even hav-

ing seen the equipment which they would operate in combat. Air crews went into operational training units to correct this deficiency; ground crewmen went to factory schools if they were lucky or broke in on the line as a helper to a slightly more experienced mechanic.

Out of this experience grew refinements which have led into the effective techniques employed in ATRC today. Within hours after the North Koreans surged south of the 38th Parallel in June 1950, ATRC, mindful of the trained personnel deficiency of World War II's early days, ordered all technical schools into a three-shift day to operate 6 days a week. This immediate expansion of more than 20 percent in output of trained personnel was accompanied during the next year by reopening of more than a dozen bases to accommodate new flying and technical schools. As a result, ATRC today possesses a potential for further expansion adequate to the Air Force's foreseeable needs.

The quality of instruction, too, is improved. Training today is conducted on equipment which the individuals will use in operational units. Courses are broader, so that even though an airman normally performs a particular task he is prepared to take over another specialist's duties if the need should arise. ATRC itself now provides the operational training which in wartime was handled by Operational Training Units. This it accomplishes through the new Crew Training Air Force, whose courses turn out combat-ready graduates.

Just as the Air Matériel Command is required to re-equip the Air Force approximately once each 4 years to keep up with advances in operational aircraft, ATRC finds it necessary to retrain the entire Air Force in about the same period of time. The reason is that, despite every effort to make the Air Force more attractive as a career, the re-enlistment rate is still relatively low. ATRC must maintain a large training establishment to keep refilling Air Force ranks.

Experts in ATRC's personnel division have developed charts to show that, if every individual who entered the Air Force stayed a full 30 years, the training establishment could be reduced to about one-sixth of its present size. The five-sixths thus released from training would greatly bolster our operational units.

ATRC conducts its training activities under three categories, each the responsibility of a training air force. The Technical Training Air Force (TTAF) conducts training of new recruits and virtually all technical, administrative, and services training which does not involve flying. An exception is that TTAF trains the aerial gunners of the Air Force.

Flying Training Air Force (FTAF) trains pilots, navigators, and observers to perform air crew duties in the Air Force's newest combat and transport type aircraft.

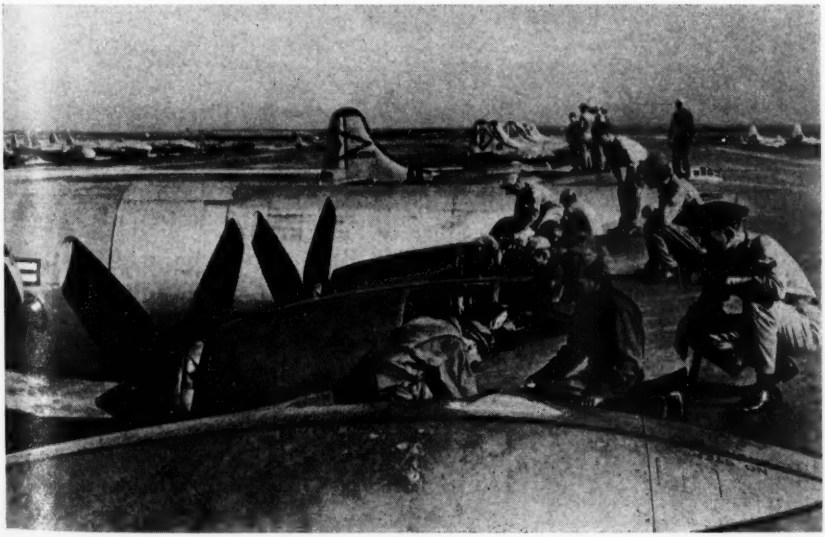
The Crew Training Air Force (CTAF) assembles the individuals trained by FTAF and TTAF into air crews capable of immediate transition to combat.

ATRC is bearish on textbooks and bullish on practical application. Show the man how it works, let him work it himself, check to see how well he does it—that is the ATRC teaching system. When the system runs into snags, it is usually because one of these elements has not been satisfied.

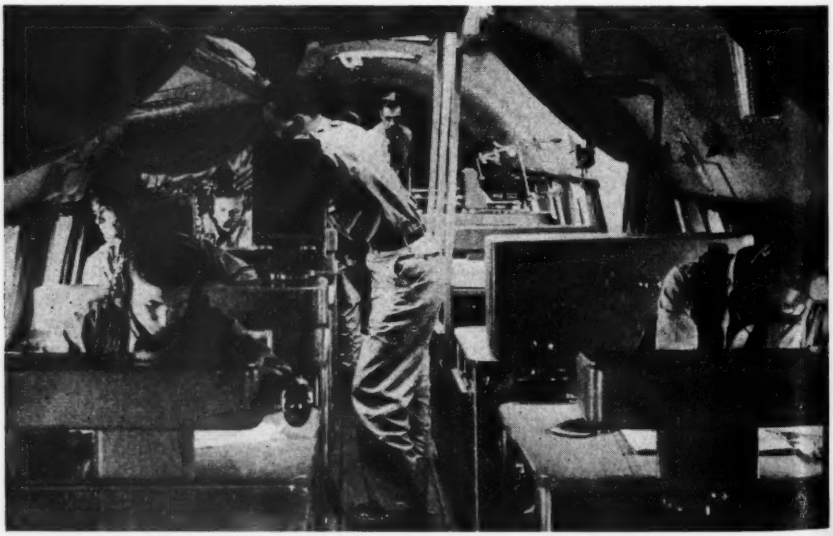
The Air Training Command performs the task of translating modern scientific advances into terms and techniques which large numbers of essentially average individuals can come to understand and practice

The Air Training Command today possesses a potential for further expansion which is adequate for the Air Force's foreseeable needs. Above, aviation cadets, ready for a training flight, walking to their aircraft. Below, student flight line mechanics at San Marcos Air Force Base, Texas, readying a helicopter for flight.—Department of Defense photos.

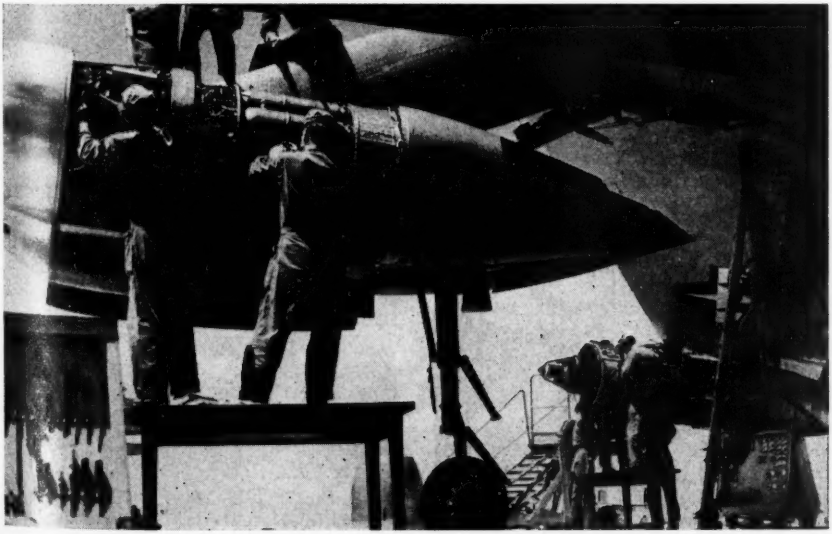
The Air Training Command is bearish on textbooks and bullish on practical application. Show the student how it works and let him work it himself. Above, a central fire control gunnery student checking over the gunnery system in a *B-29*. Below, student mechanics working on the complex engines of a *B-36* bomber.—Department of Defense photos.



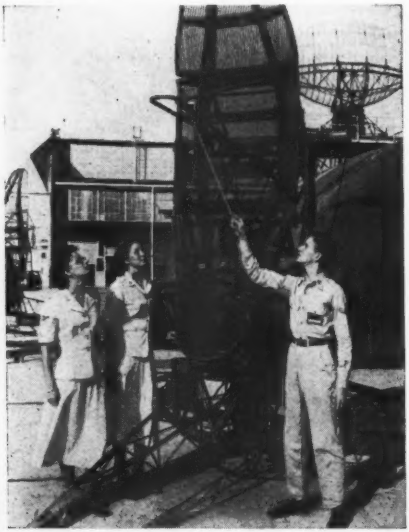
Military life is 90 percent training and 10 percent application. Most military activity is aimed at improving unit effectiveness. Above left, a student analyzing aerial photographs. Above right, cadets learning about the Form 1 flight log. Below, a group of Air Force observers training in a flying classroom.—Department of Defense photos.

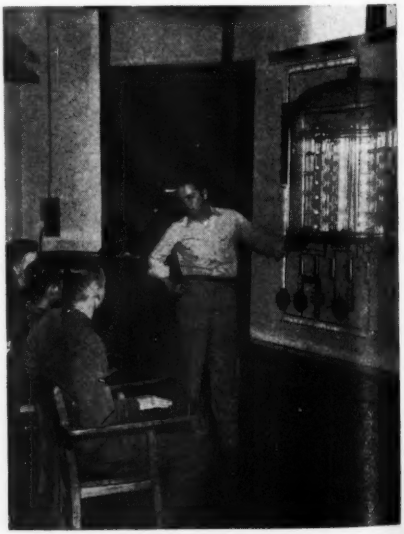


The job assigned to the Air Training Command is to produce, within a short period of time, skilled personnel to answer the demands made by the Air Force. Above, an instructor briefing aviation cadets on the operation of a landing gear. Below, student mechanics learning the intricacies of a *B-47*'s engines.—Department of Defense photos.



The major problem before the Air Training Command is to train personnel to work with today's more complicated equipment. Above, students learning the technical aspects of an aircraft plotting board. Below left, two WAFs getting acquainted with radar. Below right, visual aids helping the students to learn.—Department of Defense photos.





MILITARY NOTES AROUND THE WORLD

UNITED STATES

Tough Tank

The Army has unveiled what it calls the first completely new medium tank to be developed since World War II—the *T48*, or *Patton 48*. It is fast, low-slung, hard-hitting, and as easy to handle as a new car.

The Army's new *Patton 48* tank.

The *Patton's* 90-mm gun fires an armor-piercing shell at such high velocity that even 11 inches of armor plate is doubtful protection at 2,000 yards. Automatic loading provides a rapid rate of fire. The gun's barrel can be replaced quickly in the field when it wears out.

Sighting is rapid and deadly accurate. The gunner can get on target within a few seconds. The gun and sights are accurate enough to hit a target the size of a bushel basket at 2,000 yards. After firing, the sighting mechanism automatically brings the gun back on its target.

It has three machine guns—a .30- and two .50-caliber weapons. One of the .50-caliber guns can be loaded, aimed, and fired from inside without opening the turret hatch.

Sloping sides on both the hull and turret will deflect many hits. The hull and turret each are cast in single pieces of armor. The silhouette leaves a squatty target less than 9 feet high.

It is powered by a V-12 engine which develops 810 horsepower. That means a speed of 35 miles an hour or more when it is needed in combat, and power to climb grades steeper than 40 percent. The engine is almost as small as previous power plants producing only 500 horsepower.

Its treads are 28 inches wide, 5 inches broader than any put on previous United States tanks.

A torque converter eliminates gear shifting. Power steering with a single lever replaces the twin, manual levers of older tanks. The 49-ton tank can pivot on its own axis. The only other controls are a brake and an accelerator. Driving ease eliminates an assistant driver from the crew. The *T48* needs only a commander, gunner, loader, and a driver.—News release.

Training Center

A 12-million-dollar Signal Corps training center, modeled after a modern technological college rather than the traditional Army-type school, is under construction at Fort Monmouth, New Jersey.

The new center will include classroom and administration buildings, an auditorium and amphitheater to accommodate 3,000 persons, and 10 new-style barracks to house a total of 5,000 men.—*The New York Times.*

Bulletproof Gasoline Tank

A bulletproof, self-sealing gasoline tank made of silk, wool, or other cloth has recently been developed.

The tank, for use in military aircraft where weight is a big factor, is made of several layers of cloth, glued together on the bias. Inside the cloth is a self-sealing liner, made of a material which will swell upon contact with gasoline. The swelling seals the bullet holes.

The great advantage of the cloth, according to the inventors, is that, unlike aluminum or other soft metals, a bullet will not leave jagged holes, nor will the pressure created inside the tank by the passage of the bullet cause strains on joints or rivets. The cloth layers are overlapped and the successive layers are cut on the bias at various angles for greater strength. An adhesive, not soluble in gasoline, is used to bind the layers together.—*Science News Letter.*

Underground Storage

The Air Force is studying the feasibility of storing aviation gasoline underground in "de-salted" salt pockets in the Midwest. Such storage space could be created through the injection of water to dissolve the salt beds.

Enthusiasts say that "purified"—water-treated—salt cavities will provide a cheap, safe, and well-concealed means of gasoline storage.—News release.

'Gasifier'

A "gasifier," originally developed for airplane engines, soon may help gasoline-powered Army equipment get started in cold arctic weather.

Army engineers state that the device helps engines start in less than 30 seconds and at temperatures of minus 65 degrees Fahrenheit.

It uses no external heating source. Instead, it supplements the carburetor. As the engine is cranked, the gasifier burns a small amount of the fuel under controlled conditions. Heat thus generated warms the rest of the gas, vaporizing it.

After a few minutes, the gasifier can be cut off and the engine will operate in the usual way.—*Science News Letter.*

Constant-Altitude Weather Balloon

The Air Force has announced the development of a robot balloon which, carrying meteorological instruments, can maintain a constant, unvarying altitude in the stratosphere for more than 3 days.

Until now, balloons sent aloft to record air pressure, temperature, winds, cosmic radiation, and other features of the stratospheric region between 50,000 and 100,000 feet have been able to make only comparatively quick sorties.

Instruments were released as the balloon passed through the desired altitude. The balloon continued in its ascent until decreasing atmospheric pressure and the sun's heat burst the bag.

The new altitude-controlling device utilizes either fine steel dust or liquid as a ballast, with the ballast discharge controlled automatically by atmospheric pressure. It is preset, before launching, for the desired altitude.

The balloons, made of polyethylene plastic, vary in size from 45 to 100 feet in diameter and up to 130 feet in length. The recording equipment is carried in a sling about 100 feet below the bag.—News release.

Rocket Ship

The Air Force soon will test a new rocket ship—the *X-2*—which is expected to smash the Navy *Skyrocket's* 1,238-mile-an-hour speed record.

The *X-2* is a stainless steel plane with swept-back wings. A descendant of the first supersonic plane—the *X-1*—the *X-2* has a vastly higher design speed than previous faster-than-sound ships.—News release.

Recommend Fewer Airplane Types

The Pentagon is considering a proposal by the Aircraft Production Board that this country quit producing some of its airplane types, and concentrate on a few that are considered superior.

If this recommendation is adopted, it would do away with the production of such planes as the *F-89*, *F-84G*, *F-3D*, *F-94C*, *F-9F*, and *F-10F*.

Instead, production would be concentrated on the *F-84F*, *F-86F*, *F-86D*, *F-2H*, *F-3H*, and *F-4D-1*.

The recommendation would continue the current heavy production of the six-jet *B-47B* and *B-47C*, but would wipe out the *B-57A Canberra* in favor of the *B-66*, the Air Force version of the Navy's *A3D* attack bomber.—*Armed Force*.

Best Rescue Color

The widespread and firmly established belief that the bright chrome yellow color, sometimes called "life raft yellow," is the most conspicuous color against the sea at search distances has been refuted by recent research by the Navy.

During practical field studies of the visibility of color at sea under a variety of weather and light conditions, it was found that a light, bright scarlet can be seen at greater distances than the yellow now in wide use for rafts, life rafts, life preservers, and similar equipment for air and sea rescue.—*Army Navy Air Force Register*.

Army Mule

The Army has a new mule—the *H-25 Army Mule*, an evacuation, assault, and transport helicopter.

The *Army Mule*, a new version of the

The Army's new *H-25 Army Mule* helicopter.

famous Navy *HUP* helicopter, which is in service on aircraft carriers and at shore installations, can carry four to six men plus a crew of two. It will be used to haul troops and supplies to the front and rescue wounded personnel.—News release.

New Lubricants

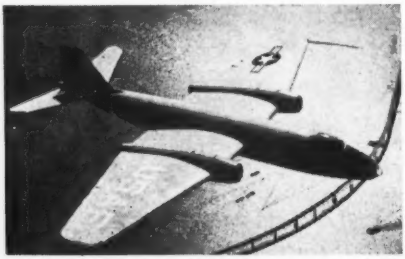
The Navy has announced the development of new lubricants which enable electric motors to operate at much higher temperatures and for much longer periods between greasings.

Developed in a 5-year joint Navy-industry program, the lubricants have been made available commercially. They permit electric motors to be operated continuously at 300 degrees Fahrenheit, compared with a former temperature ceiling of 175 degrees Fahrenheit.

Not only can motors be operated at those high temperatures without relubrication for considerably greater periods than were possible before, but if motors are operated at lower temperatures half the time, the lubrication intervals can be much longer.—News release.

Canberra Bomber

The Royal Air Force *Canberra* light bomber, which made the first Atlantic round-trip in a single day last August, is now—formally and officially—a United States Air Force airplane. Changing of insignia has just been completed at The



The Air Force's new *Canberra* light bomber.

Glenn L. Martin Company, where the *Canberra* is undergoing an advanced test program.

An undisclosed number of a night-intruder version of the *Canberra* is being built for the Air Force. The American-built *Canberras* will be essentially the same externally as the Royal Air Force version, but will be powered by two *J-65 Sapphire* engines instead of Rolls Royce *Avons* which furnish power for the British models.—News release.

Army Camps

Army engineers have blueprints ready for quick and relatively cheap construction of new Army camps in case of all-out mobilization.

A team of draftsmen and engineers has completed drawings of 245 types of buildings, from barracks to laundries, which would be needed if the Army has to expand suddenly.

The designs were drawn after a nation-wide study of construction materials and methods. They are suited to standard cuts of lumber and employ construction short cuts and mass-production methods.—News release.

Jet Tow Target

The Air Force has awarded a contract for the design and development of a radically new and improved tow target for jet fighter gunnery practice.

The 30-foot, all-metal tow target will look like a modern jet fighter, and will be controlled from the jet medium bomber which pulls it.

Because of the extreme speeds involved, the tow line will be some 2 miles long. An offset mechanism will make the target fly to one side of the tow plane instead of directly behind it—for safety reasons, primarily.

A release device will detach the tow cable when the target touches the ground, and will free a parachute from the target tail to bring the craft to a safe stop.—News release.

Packaged Asphalt

The Engineer Corps is investigating the practicability of packaging certain types of asphalt in multiwall paper bags for shipment to Army construction engineers in all parts of the world.

The bags, currently undergoing rigid tests, hold 100 pounds of asphalt.

The asphalt is loaded into the bags in liquid form. This is done by heating it to pouring consistency. The liquid is then poured through a hose into the bags, which are placed in wooden scaffolds to help them retain their shapes.

A clay coating on the inner bag liner prevents the hot asphalt from sticking to the paper and facilitates stripping of the bag from the contents.

After the bags are filled, they are stored for approximately 24 hours during which time the asphalt cools and hardens. This cooling and setting period is necessary before the packaged asphalt can be handled. Upon arrival at its destination, the asphalt is ready for use by merely cutting the bags with a sharp knife and stripping the paper.—News release.

Casting Process

A process of casting metal, described even in early Egyptian records, now is being used to produce precision parts for jet aircraft.

Known as the "lost-wax" or investment process, a wax model of the part to be cast is made from a master pattern. A liquid silica refractory is poured around the wax model and allowed to set. The whole business then is turned upside down and heated. The wax model melts and runs out, leaving the mold.

Molten metal then is poured inside the mold and allowed to cool. Afterward, the mold is broken open and the cast part is removed.

By the process, intricate parts may be made of nonferrous metals as well as of cast iron and steel. The surfaces emerge smooth and have high dimensional accuracy.—*Science News Letter.*

Lightweight Parachute

A safer, lightweight parachute that opens automatically, is virtually free of oscillation, and which incorporates a very low opening shock has been developed by the Air Force's Air Development Center, Dayton, Ohio.

The new harness is a simplified system of nylon straps connected by snaps. It has only three adjustments, while the one now in use has seven. The new 'chute is put on like a vest.

The parachute is 28 feet in diameter and employs 12 conical-shaped guide surfaces extending down from the canopy. The guide surfaces both reduce oscillation (swinging like a pendulum) and lower the opening shock. The entire assembly weighs only 22 pounds, about 20 percent less than present parachutes.

Development of the new parachute began a little more than a year ago to meet the more stringent requirements placed on personnel parachutes by faster aircraft flying at higher altitudes.—*All Hands.*

Rubber Lifeboat

The Navy and the Coast Guard recently demonstrated a new airborne rubber lifeboat that inflates in 30 seconds to provide protection for 15 survivors in either subzero or blistering tropical weather. The boat, which is the size of a small steamer trunk when deflated, carries 50 pounds of canned drinking water, de-salting equipment for making sea water drinkable, 30 pounds of food, first aid equipment, paddles, signals, a lifeboat repair kit, pumps, markers, sponges, a flashlight, sea anchor, whistle, and a knife. Previous tests by the Navy in arctic waters have indicated that the heat from the bodies of 15 men would hold the temperature inside the canopy of the boat at close to 70 degrees Fahrenheit. Tests in tropical waters show that the insulated canopy offers protection from the sun and the wind.—*The New York Times* release and photo.

The new lifeboat being demonstrated.

Pilotless Supersonic Planes

The Air Force is considering the production of two supersonic pilotless interceptor planes—the *XF-99 Bowmark* and the *XF-98 Falcon.* These would be the first fighters designed for the defense of the United States against bombers that would not carry pilots. Both are now in prototype stages.—News release.

Foreign Aid Spending

United States agencies plan to spend upward of 800 million dollars for military, economic, and technical aid to Far East countries during the next 12 months.

Military and economic help, through the Mutual Security Agency, will come to about 750 million dollars. The bill for all these activities during the last fiscal year was a little more than 1 billion dollars.—News release.

Individual Cook Stove

A one-burner stove, used for heating rations when a soldier is separated from his unit, is proving it worth in Korea. The stove weighs only 22 ounces, about half that of its World War II counterpart. However, its heat output is far greater than the former type.

It has been so designed that it can be operated by a soldier wearing heavy mittens. Tests indicate that it operates at temperatures as low as 65 degrees below zero, colder than it ever gets in Korea. It is made of low-grade carbon steel, thus saving about a pound of the more costly stainless steel used previously.

The stove's generator has a life span of about 100 hours, compared with 70 hours for its predecessors. In order to make it compact, for easy carrying, legs and supports fold against the heating unit.—*Armed Force.*

Research Balloon

The Army, using a balloon carried 80 miles up by a rocket, is going to check on the theory that a layer of oven-like air exists out toward the edge of space.

The Army Signal Corps announced the development of a nylon balloon to be fired in an *Aerobee* rocket and released when the desired altitude is reached. A pressurized cylinder inflates the balloon, which carries automatic transmitting equipment to send back information on temperatures. —News release.

Cockpit Capsule

The Naval Bureau of Aeronautics has taken the wraps off a new "bail out" cockpit capsule, which provides jet pilots a safe means of emergency escape at supersonic speeds, and has announced that the device has passed preliminary tests and is now ready for use.

When a pilot finds it necessary to bail out of his jet plane in a hurry, he touches off a rocket charge which expels the entire cockpit clear of his craft. Three fins unfold at the after end to stabilize the capsule, and a small parachute pops out to slow down its forward speed. When a safe speed is attained, a main 'chute is released, and the capsule is wafted gently to the earth.—*Armed Force.*

Jato Propellant

A solid fuel propellant has been developed that will enable aircraft using jet-assisted take-off (jato) units to operate in temperature ranges from 175 degrees above zero to 75 degrees below zero. Present jet-assist propellants limit operations to temperature ranges of 10 degrees below zero.—*The New York Times.*

Titanium-Alloy Engines

Lighter engines for jet propulsion, using a titanium alloy instead of steel, are scheduled for production in the near future. Engines made of the alloy are only three-fifths as heavy as steel engines of equal strength. One great value, besides saving weight, is that the alloy is not subject to corrosion either from salty air or the gases to which a jet engine is subjected.

Titanium and its alloys are relatively new in the engineering field, since commercial production of the metal from its plentiful ores is largely a postwar development and is still costly. This, however, will not prevent its use in military aircraft where cost is secondary. When cheaper methods of obtaining the metal are developed, it will have hundreds of applications. —*Science News Letter.*

Pulse Jet Engine

The Navy has announced the development of a new pulse jet engine that may play a significant role in American development of guided missiles and in helicopter flight. The engine, light, simple, and easy to construct, is expected to be used primarily in the guided missile field. However, the Navy stated that it also probably would advance the development of jet engines for use in helicopters because it produced a static thrust several times as great as its own weight. The engine is not yet in quantity production.—News release.

Blood Containers

The Army is experimenting with the use of plastic bags to replace glass bottles and containers in the shipment of whole blood. Thus far, tests indicate that the bags are far superior to bottles, both in the shipment and administering of whole blood. Among the advantages cited in the use of the bags are that they can be dropped by plane to remote areas, that they occupy only half the shipping space of the bottles, and they greatly facilitate transfusions to wounded soldiers.

Determination of the practicability of the new plastic containers for Army-wide use will be made after improved models have undergone testing at the Brooke Army Medical Center, Fort Sam Houston, Texas. The bags can be used to collect the blood from the donor. Although they do not have the vacuum pull incorporated in the bottles, they can be filled in 8 to 16 minutes with the aid of gravity and the donor's muscular efforts.

Aerial shipment of the bags to Korea would be made much easier because of the reduced weight and size of the bags as compared with the glass bottles. Once the blood has been used, storage space required for reshipment to a blood donor center is only one-quarter that of the bottles.—*Armed Force.*

FRANCE

Armored Equipment

France recently demonstrated two new pieces of armored equipment—a 12-ton armored reconnaissance car and a 13-ton light tank.

The armored car has eight wheels—four wheels with pneumatic tires in front and rear, and four tractor wheels in the center.

Above, the 12-ton armored reconnaissance vehicle. Below, the new 13-ton light tank.

It has a speed of 30 miles an hour on uneven ground and 62 miles an hour on highways. It is equipped with a 200-horsepower engine and a reversing gear which increases its mobility. It carries either a 75-mm cannon or antiaircraft guns, as well as three 7.5-mm machine guns.

The light tank, which also mounts a 75-mm gun, is exceptionally maneuverable and can be used as a tank destroyer. It is equipped with a water-cooled engine and has a top speed of 25 to 28 miles an hour on rough terrain and 44 miles an hour on highways.—News release.

CANADA

Electric Power Dam

A 100-million-dollar electric power dam will be erected on the Bersimis River in Quebec Province. Work on the dam is to start in the near future and it is expected to be completed in 1956.—*The New York Times.*

AUSTRIA

New Metal for Jets

Two Austrian scientists have discovered a new heat-resisting metal for use in jet engines and rockets. The new metal is reported to be able to resist temperatures of more than 9,000 degrees Fahrenheit.

The scientists combined certain materials in powdered form, including cobalt, tungsten, and chromium, under great pressure and heat to produce the new metal.—News release.

ITALY

World War II Casualties

Italy lost 288,274 men in World War II, according to an official Government publication. Of these, 33,762 were killed or unaccounted for in operations against the Germans after the September 1943 armistice.

Italy also lost about 50,000 civilian internees who disappeared or died in Germany, Yugoslavia, Greece, and other European countries.—News release.

UNION OF SOUTH AFRICA

United States Loan

The United States Government's Export-Import Bank has lent 19½ million dollars to help increase South Africa's output of uranium, a basic material for the atom bomb. The bank previously had lent 35 million dollars for the same purpose.

The money is to be used to build up the electric power supply for plants which separate uranium from ore taken out of South African gold mines.—News release.

AUSTRALIA

Jet Engines

Australia is to step up her production of Rolls Royce *Avon* gas-turbine engines. The engines will be used to power the *Canberra* jet light bombers and the United States *Sabre* jet fighters which are to be produced in Australia. At present, the Government has on order 48 *Canberras* and 72 *Sabres.*—Australian News and Information Bureau.

Development Programs

The International Bank for Reconstruction and Development recently made a loan of 50 million dollars to Australia to finance development projects in that country.

The loan will be used for the import of capital goods and equipment needed in the following fields: agriculture and land settlement, coal mining, iron and steel production, electric power, railways, road transport, the production of nonferrous metals and industrial minerals, and manufacturing industries.—*The Christian Science Monitor.*

Recruiting Program

Australians with experience in jungle fighting have been asked to volunteer for a 1-year tour of duty with the British Army in Malaya. Volunteers will train and officer Malayan Home Guardsmen against Communist guerrillas.—*Australian Weekly Review.*

Immigration Reduced

The Minister for Immigration has announced that Australia will reduce immigration to 80,000 persons annually, or half the average for the last 4 years.

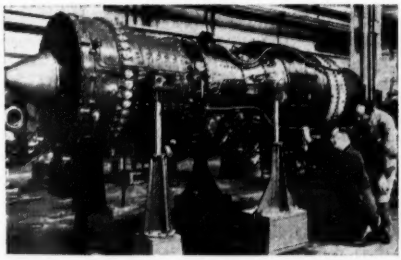
During the next 2 years, immigration will be confined to craftsmen, and no unskilled labor will be accepted. By the end of this year, 700,000 men settlers will have been received since the end of the war.—News release.

GREAT BRITAIN

World's Most Powerful Jet Engine

A new British jet engine, the most powerful in the world, is just off the secret list. It is the *Olympus*, which delivers a 9,750-pound thrust—the equivalent of more than 17,000 horsepower at 600 miles an hour.

The immense power of the *Olympus* is achieved with remarkably low fuel consumption and is the result of many months of research and development work.



The new British *Olympus* jet engine.

With turbines, as with piston engines, the key to high power and economical fuel consumption is the use of a high compression ratio. In designing the *Olympus*, engineers have solved the problem of obtaining a high compression ratio from axial compressors by "compounding"—the use of two compressors in series. The *Olympus* consists basically of a low-pressure unit and a high-pressure unit, each having an entirely independent axial compressor and turbine. The low-pressure unit acts as a supercharger to the high-pressure compressor, and each is driven through concentric shafts by its own separate turbine.

This arrangement gives all the advantages of handling and easy starting obtained with engines of medium compression ratios, but yields the much lower fuel consumption made possible by the use of high compression ratio.—British Information Services release and photo.

Guided Missile

Great Britain's latest guided missile not only can travel at 2,000 miles an hour, and at altitudes of more than 10 miles, but it can twist and turn to pursue its quarry. The missile's electronic "eye" can follow its victim no matter how hard it may try to escape.

More than 100 British firms are now engaged in putting this weapon into volume production.

Great Britain's latest guided missile.

The important point about this guided missile is not that it can fly at such high speeds and reach such great altitudes, for the German *V-2* weapon could do the same things. The point is that it can be guided accurately onto a twisting target no matter what type of evasive action it may take. It is to achieve this "guiding" action that Britain's best scientific brains have been applied since the end of the war.

The basic research on the new rockets has been done mostly by the Government's experimental establishments. The results of this research have been made available to selected firms who have been entrusted with the task of developing specific rocket weapons to fulfill various operational roles.—British Information Services release and photo.

SYRIA

Plan Legation at Bonn

Syria has announced plans to open a legation in Bonn, Germany, implementing the Government's announced decision to exchange diplomatic representatives with Western Germany.—News release.

KOREA

Minesweepers

More United Nations minesweepers have been sunk or hit by enemy shore battery fire in Korean waters than any other type of ship. These vessels are not classed as "combatant."—*MSTS Magazine.*

Spur Tungsten Output

The South Korean Government has begun a 2-million-dollar project to double the production of tungsten ore. Tungsten ore, South Korea's top dollar-earning item, is exported to the United States exclusively under a trade agreement. When the project is completed by next May, five tungsten mines in South Korea will meet one-third of the world's demand.—News release.

JAPAN

Trade Agreement

Japan and Indonesia have signed a trade agreement under which Japan will send Indonesia 55 million dollars worth of textiles, metal products, and other goods, and will import 40 million dollars worth of Indonesian rubber, tin, petroleum, and other materials.—News release.

WESTERN GERMANY

Nonstrategic Goods

The West German Government has announced a new agreement with Eastern Germany providing for the exchange of 94 million dollars worth of nonstrategic goods. A previous agreement in May of this year covered the exchange of goods worth more than 15½ million dollars.—News release.

GUATEMALA

Budget Adopted

Congress has approved a budget of more than 63 million dollars for the current fiscal year. The highest allotment, about 9 million dollars, was for education. A total of 6 million dollars was allotted for defense.—*The New York Times.*

COMMUNIST CHINA

Telegraph Line

The Peking radio has announced that a telegraph line has been opened between Chungking and Lhasa, capital of Tibet.—News release.

USSR

Protective Moat Planned

Plans are underway in the Soviet Union to construct a huge moat around Stalingrad to protect the city in the event of another conflict.

It is anticipated that the artificial Zimlianskaia Sea, which soon will be created in the southeastern part of European Russia, will shelter the great Soviet steel center from the possibility of an attack from the West.—News release.

MALAYA

United States Carbines

The United States has shipped 1,000 carbines to Malaya in response to a request from that country for light weapons to arm rubber planters in the war against Communist guerrillas.—News release.

POLAND

Exchange Agreement

Poland and Communist China recently signed a trade agreement under which the Poles will export railway rolling stock, tools, metal products, chemicals, paper, and other unnamed products in exchange for Chinese ores, asbestos, graphite, raw textile products, leather, and agricultural products.—News release.

FOREIGN MILITARY DIGESTS

Tank Warfare—And Its Future

Digested by the MILITARY REVIEW from an article by Captain B. H. Liddell Hart in "The Infantry Journal" (India) July-December 1951.

"Tanks are no longer a menace."

"We have too much armor—tanks are finished."

"It may well be that tank warfare as we have known it will soon be obsolete."

THESE three authoritative views, taken from a long list of similar kind, were expressed at wide intervals during the last quarter of a century.

The first statement was made at a press conference in 1928, at the time when the disbandment of the British Army's "Experimental Armoured Force," the first in the world, was announced. Some of Germany's soldiers, however, were quick to grasp the offensive potentialities of that new kind of mobile force, and hastened to develop such forces with Hitler's backing, when he came into power. In 1940, they shattered the defense of the West, producing the fall of France, while only the sea barrier saved Britain from defeat by her own weapon.

The second statement quoted was made by Mr. Winston Churchill in February 1944. It was the more remarkable because he had been the godparent of the tank in World War I, and then had seen it exploited by the Germans at the start of World War II with such startling success that he had been taken aback. Yet, early in 1944, he had been convinced by his official advisers that the tank was "finished." A few months later, Patton's tanks, breaking out from Normandy, swept through France like a torrent, repeating the tank drive of 1940 in the reverse direction.

The third statement quoted was made in America, by the Secretary of the Army, only a few weeks before the outbreak of the conflict in Korea. Mr. Pace cannot be blamed for reflecting the opinion of his expert advisers. Many of the top-level soldiers had been too ready—like the French and British military chiefs 10 years before—to assume that the tank menace had been mastered. Their anticipations were fostered by the scientists. Too much faith was based on new weapons that were not yet proved, nor even in production.

Never has there been a more chronic case of military myopia than that which has dimmed the soldier's vision where the tank is concerned. It is a matter of old history how those who sat in the seats of

authority failed to recognize the potentialities of such a fighting machine, until it was forced on them from outside, in World War I. Since then, for 30 years, the professional pontiffs have repeatedly declared "the tank is dead," and as often been caught napping by the way it rose from the grave to which they had consigned it.

The latest example was provided by the North Korean invasion of South Korea in June 1950. The rapid opening success of the invaders was due primarily to the shattering effect of a mere four battalions of Korean-manned Soviet tanks, numbering only some 200 machines. South Korea had almost as many men as the invaders, but her forces could not withstand that small number of fighting machines. The American troops who first arrived to reinforce the defense also found the menace of this handful of tanks far more formidable than they had been led to expect.

So great was the impression made by the North Koreans' tanks that not only their number but their size was much exaggerated—as in the case of the German invasion of France 10 summers before. Correspondents at the front in Korea reported that the invaders were using "60-ton tanks," thus giving rise to the idea that the Soviet Union had provided her satellites with the *JS III*—the latest known model of the *Josef Stalin* heavy tank. In reality, the attack was delivered with nothing more powerful than 30-ton *T34s*, a type which made its battlefield debut back in 1941. It was still good enough to beat the kind of defense and the antitank weapons it met.

No less significant was the fact that the North Korean drive for Pusan only lost its impetus when its tanks dwindled away, from lack of replacements. After the crossing of the Naktong River, the North Korean offensive was continued almost entirely by a series of massed infantry attacks; and these failed badly. Thus, time was gained for the arrival of more American reinforcements equipped with *M26* and *M46 (Pershing* and *Patton)* tanks that were capable of countering the *T34*. The United Nations counteroffensive only became possible when the balance of tank superiority had changed.

'Old-Fashioned' Employment

In the subsequent stages of the Korean campaign, tanks played a lesser role. That was due, in part, to the lack of a definite technical superiority in tanks on either side; in part, to the fact that ground conditions worsened as winter approached. However, it was also due to the way that tanks have been used—in little packets as mere aids to the infantry. That is the old-fashioned way, dating back to World War I, and it cannot produce decisive results. The Eastern forces have never learned to advance beyond it. The Western forces seem to have forgotten the more advanced technique—and, consequently, to have lost opportunities of making their counteroffensive quickly decisive while the North Koreans were shaken and without tank reinforcements.

Here it is worth quoting a recent letter from a friend serving in Korea who has much knowledge of armored warfare. He remarked:

> Tanks have been used primarily in this war to spearhead and support infantry units—and it is my personal opinion that tanks could have been more wisely used than they have been. When you have medium tanks and your enemy has nothing more than small arms, automatic weapons, and mortars there is no reason why your tanks can't penetrate enemy territory on fast raids and raise the devil. This has not been done in this war, but in my opinion it should have been. And your theory that we should put more punch in the forward elements of our armored units, and eliminate some of the endless trains that support combat armored units, is the answer, in my opinion, to modern warfare.

The Soviet Threat

Over Western Europe lies the threat of invasion by a mass of Soviet armored divisions. Of the USSR's 175 active divisions, it is estimated that 55 are "tank"

or "mechanized" divisions which are nearly as strong in tanks (about 80 percent) as the "tank divisions." More ominous still, the bulk of the divisions in occupied territory are now of such armored types. There are known to be at least 25 of these that are stationed well forward and could advance at short notice. That represents an initial striking force of nearly 6,000 tanks—an avalanche of armor compared with the trickle that descended on South Korea.

As there can be little hope of matching the Soviet tanks in quantity for a long time, while even a Western superiority in quality of tanks is dubious, it becomes all the more vital to meet the threat with superior tactics. Such a tactical superiority can count for a lot. In 1940, the German tanks were neither as numerous nor as powerful as the French tanks, yet they shattered the French armies and overran the French within a few weeks. In 1941, the German tanks were greatly inferior in number to the Soviet tanks, yet they destroyed the bulk of these and had almost liquidated the Soviet Union's original armies when winter intervened. In each case, they won because they knew how to handle tanks in large formations while their opponents did not.

Confused Terminology

There was, and is, a vital difference between "tank warfare" and "warfare with tanks." The two are too often confused, by military professionals as well as the public. To understand the difference we must go back and trace the tank story from the beginning.

Battlefield Debut

The tank made its first appearance in war on 15 September 1916, in the British offensive on the Somme. It had been devised as a solution of the stalemate produced by the deadly effect of the opposing armies to take shelter in trenches. Once that happened, the war had become stagnant. The customary forms of attack proved futile to overcome the advantage of a well-entrenched defender, and repeated attempts to break through the bullet-swept zone of machine-gun fire failed with overmounting losses.

The French suffered worst of all, since they were striving to eject the German invader from the portion of France he had occupied in his first onrush, before the deadlock developed. In their 1915 series of attacks by massed waves of infantry, they incurred a physical and moral cost from which they never recovered during the war, or subsequently.

A key to the deadlock was found in the British development of a combination of armor, the caterpillar track, the gasoline motor, and a gun.

On their battlefield debut, in the Somme offensive, the tanks fell short of fulfilling the hopes that had been pinned to them. That was due to the way that the high command chose to hurry a handful into action before "teething troubles" had been overcome and crews fully trained. However, on 20 November 1917, when 380 tanks were launched by surprise against the Hindenburg Line near Cambrai, they smashed a big hole in it—a foreshadowing of greater successes the following year.

French Developments

Meantime, the French had, independently, developed a similar kind of trench-storming machine, which they called a *char d' assaut*. It was later in development than the British, owing to the difficulty which the imitator met in convincing the French military chiefs of its potential value. The first battlefield trial in 1917 proved a disappointment, but the French subsequently developed machines of a small but reliable type, the Renault, and these played a leading part in the Marne counterstroke of July 1918 that turned the tide of the war. Then, on 8 August, another surprise attack near Amiens, led

by 460 British tanks, produced what Ludendorff called "the black day of the German Army." It was followed by fresh punches which caused him to declare that the tank was Germany's "most dangerous enemy."

However, although each of the tank assaults made a deep crack in the enemy's front, his defense was never completely broken through. The tanks were too slow to exploit it, the horse cavalry too vulnerable, and the infantry too slow and too vulnerable. So the results of a victory were never decisive.

Soon after the war, however, much faster types of tanks were developed in England—in response to a new conception that was generated there. It was a vision of "tank warfare," not merely of "warfare with tanks." To understand its meaning and its significance, we must trace the story back further than the advent of the tank—to the pre-tank era of warfare, and even back into the mists of antiquity.

The weapon that has come to be known as a "tank" was a novelty in two of its principal ingredients—the caterpillar track and the gasoline motor. The problem for which it was devised had also a partial novelty—the defensive combination of trenches, barbed-wire entanglements, and machine guns that swept the approaches with a stream of bullets. However, fundamentally, it was only an intensified variation of a very old problem, while the tank of World War I was only a modernized adaptation of the old solution. That tank corresponded to the combination of devices like the battering ram, the catapult, the testudo, and the movable tower, which had been used to breach the walls of fortresses in the ancient world.

The fast types of tanks developed after World War I were essentially different in the idea that inspired their production, yet also corresponded to an old idea. They had some affinity to the chariots and elephants that were used in ancient warfare to produce disorder in the enemy's battle array. However, they were still more closely related to the armor-clad horsemen who had constituted the principal striking arm of armies during the ages when wars were most decisive. Fast tanks were, indeed, intended to resurrect the golden age of cavalry supremacy, by giving "mounted" troops a modern form of offensive mobility. They should thus, it was thought, be able to convert a breach into a complete break-through—because they could exploit any disorder more rapidly than the opponent could rally, and drive through a gap before he could cement it.

An extension of this new concept was that such fast armored forces would be able to operate *strategically*, independently of the main army, carrying out a long-range drive to cut the enemy's communications far back, where his main arteries of supply could be severed. Thus his entire army, and power of resistance, might be paralyzed.

'Reborn Cavalry'

As I was instrumental in developing the idea of tanks as reborn cavalry, and particularly its *strategic* extension, it may be of interest to relate how this developed. It came to my mind initially from studying the long-sustained drives carried out by Genghis Khan's all-mobile forces in the thirteenth century, when the Mongols first swept eastward over China and then turned westward to overrun not only the Middle East but the eastern half of Europe. The concept of modernized "Mongol" operations was made a keynote in the training of Britain's "Experimental Armoured Force," and also caught the imagination of General MacArthur, who emphasized it in his 1935 report as Chief of Staff of the United States Army. However, I came to see more clearly its application against modern mass armies, dependent on railroads for supply, as a result

of studying the Western campaigns of the American Civil War for my book on Sherman in 1929. A blend of the lessons of Sherman's march through Georgia and the Carolinas, which cut off Lee's supplies, and of Forrest's hamstringing raids on the other side provided me with a basis in working out the technique of "deep strategic penetration" for armored forces.

The subsequent history of the tank has been a story of the prolonged struggle between the original conception of the tank as an aid to the infantry assault and the newer conception of it as an independent mobile arm. They may be called, for shortness, the "battering ram" idea and the "reborn cavalry" idea. Each of them has undergone some modification—for example, the first school of thought has come to recognize the value of speedier tanks in aiding the infantry, despite the increased difficulties of close co-operation, while the second school has come to accept the necessity of including a mobile infantry element in the armored formation as an aid to the tanks in overcoming obstacles. However, these are only modifications and do not represent any fundamental change in the two ideas which are basically different, and inherently opposed.

No 'National' Doctrines

There are no distinctively "national" doctrines of tank employment—German, Soviet, or American. The two basic ideas run through all of them like seams of contrasting color. The only value of examining the national doctrines separately lies in seeing how far one or the other basic idea has predominated, and what the results have been.

The French Army

In the years following World War I, the French Army remained the strongest in the world apart from the Soviet, and retained the largest number of tanks. It also maintained the "battering ram" idea as the basis of its tank doctrine, and its tank units formed part of the infantry arm. The example of the French naturally influenced most of the other armies in Europe and elsewhere. The United States Army followed the French line, and although in 1928 it tried an experimental armored force similar to the British, it soon dropped the experiment; only at a later stage did it swing back to that new direction and turn its cavalry into "armored cavalry."

The British Army

The British Army, in its postwar pattern, started with the advantage that its tanks were organized in a separate corps, as an additional arm, distinct from both the infantry and the horse cavalry. That was a great help in developing a new idea, unfettered by old habits and traditions. By taking the technical lead in producing tanks with a speed of 20 to 30 miles an hour, it also gained the power of being able to demonstrate the new tactical theories in a practical way. Thus, by the mid-1920s, the British General Staff was persuaded to adopt these as its tank doctrine.

Nevertheless, the infantry pressed for tank support, and in the 1930s the British General Staff, acceding to the demand, ruled that the Tank Corps must provide battalions of special *I* tanks to work with the infantry while sharing the mobile armored division role with cavalry units converted for the purpose. This meant that Britain's limited tank strength was spread too thinly. It also meant that too many senior officers who did not understand tanks were brought in to handle them and direct policy.

The German Army

The German Army had not been allowed to have tanks under the Versailles Peace Treaty. Thus, in contrast to the French, it was unencumbered either by a stock of old tanks or by an old doctrine when Hitler gained power in 1933 and provided it with the opportunity of re-equipping

itself. Meantime, the leading German officers had watched foreign trends attentively, and they embraced the postwar British idea in preference to the French. They gained Hitler's backing for their preference, which offered the greater offensive possibilities. So the German Army concentrated on creating armored divisions, and wasted no effort on tank support for the infantry. By 1940, it produced 10 divisions of this new type, and although these were only a small fraction of the German Army, they broke through the French front and virtually decided the campaign in the West before the bulk of the infantry divisions appeared on the scene.

In the last few years before the war, the French had begun to form a few divisions of the same type, but the higher command was unable to shake itself free of the old idea and tended to disperse these divisions while still allotting a large proportion of its tanks to the direct support of the infantry. Thus, the Germans found it easy to destroy them piecemeal or bypass them. The effect was the more fatal because Guderian—the chief trainer of the German armored forces, who now led the break-through—had enthusiastically adopted the idea of "deep strategic penetration." His application of it paralyzed the French Army and produced a quick collapse.

The same thing happened the next year, 1941, when the Germans invaded the USSR. The Soviet hierarchy had recognized the importance of tanks sufficiently well to furnish the Red Army with them in huge numbers. Its tank troops, however, had neither the skill nor the radio equipment required for controlled maneuver in large formations, and most of the tanks were distributed in packets for the support of the infantry. Thus, they were easily overcome by the concentrated blows of the German armored formations. However, the vast space of the Soviet Union in combination with mud came to the rescue of the Soviets in the fall, and again in 1942, so that they gained time to develop an improved antitank technique as well as a better tank force.

In North Africa, a single British armored division used on the new lines was the main factor in liquidating an Italian army 20 times its size during the winter of 1940-41. However, then the tables were turned by the arrival of Rommel, who was not only a master of offensive tank warfare, but the first general to demonstrate the defensive potentialities of the skillful combination of tanks and antitank guns. He showed how an enemy tank force could be destroyed by luring it into traps —thus clearing the path for his own tank *riposte* deep into the enemy's back areas.

Turning Point in Tank Warfare

This was an important turning point in tank warfare. The tank had been devised in World War I as a purely offensive weapon, and had long continued to be regarded only in that light. When the British tried to use it defensively in meeting the German offensive of March 1918, it was ineffective. Because of the slow speed of the tanks, they were laid out in a chain of little packets spread along the back of the front, so that they were unable to deliver a strong counterstroke at any point. Many of them fell into the enemy's hands through running out of gasoline when trying to make a lengthy switch or withdrawal. The same thing happened to the French in meeting the German offensive of 1940 when they practiced the same kind of distribution—their tanks were rarely at the right spot, and if they were it was in such small numbers that they were overwhelmed by the concentrated onslaught of the German tanks. The French had not thought out the problem of employing tanks in defense, and had not developed a new defensive technique such as was required. It was left to Rommel to prove its value.

A Battle of Attrition

The demonstration, however, had cramping effects on the development of tank warfare—and the more so because, as tank output was growing, the balance of superiority was shifting to the allied side. Few of the commanders on that side had learned the art of handling tanks in large formations, and they tended to use their increasing volume of tanks in a multiplicity of small tank fights, seeking to wear down the enemy's strength by an attrition process based on their own growing superiority of numbers. They could afford to lose two or three tanks for one of the enemy's if the attrition exhausted the Germans' scantier resources.

A Reversal in Tank Tactics

The tendency was accentuated both by the infantry's constant cry for tank support and by the tank crews' cry for larger and larger tank guns. The less confidence these had in their own skill of maneuver, the more they clamored for a decisively powerful gun, as well as thicker armor. So the tank itself grew larger and heavier, while dwindling in maneuverable number. At the same time, tank tactics reverted from the 1920-40 concept to the primitive 1914 concept.

Influence of Heavy Tanks

The Germans contributed to the tendency by producing the 56-ton *Tiger*, and then the 67-ton *Royal Tiger*. These monsters were too slow and cumbrous for exploiting an offensive into a rapid and deep break-through, but they appeared at a time when a weakening German Army was being forced on the defensive, and in defense they were a very formidable deterrent to attacking tanks that tried to penetrate the German front.

The compound effect of these factors was that, in the later stages of the war, tank battles declined into gun duels between individual tanks or small units. The few exceptions to the rule occurred when the German tank strength was temporarily reduced to a shadow—as it was on the eve of the allied break-out from Normandy. However, most of the later battles were serial slogging matches, in which quickness of shooting by the individual tanks counted for much more than the quickness of formation maneuver.

The Korean Pattern

There, things remain. The tank operations in Korea have followed the same pattern—if, indeed, tank fighting that is so shapeless can be described as having a "pattern," or as "operations" in the true sense. They have provided a renewed demonstration of the importance of "tanks in warfare," but not of "tank warfare."

North Korean Tactics

It is worth note that the North Korean tanks were not used in the "strategical" style that the Germans adopted in launching their invasions—deep penetration by independent armored forces racing ahead of the rest of the army. The North Korean tank advance appears to have been in the "tactical" style normally followed by the Soviet Army, and others, in the middle and later period of the last war—limited bounds by little packets in close co-operation with the infantry. The North Koreans' scarcity of mechanized troops, to make up the armored team, would naturally impose such limited methods.

Despite the surprise and ease of their opening advance, they penetrated barely 50 miles in the first week. The Germans' 1941 tank advance into the Soviet Union penetrated as far as that on the first day, and more than 200 miles in the first week. If the North Koreans had been able to operate in Guderian style they would have overrun the whole of South Korea before the United States reinforcements had arrived on the scene.

What Does the Future Hold?

What of the future? The only conclu-

sion that has any certainty is that the tank will not have a future equal to its past unless there is a return from the "battering ram" idea to the "reborn cavalry" or "Mongol" idea. We are not justified in regarding such a return as impracticable until we have explored the possibilities of a new step forward in the design of tanks and of tank formations.

Changes in Tank Design

The most experienced tank generals of the German Army, which took the lead in mounting larger guns in tanks, came to the conclusion that maneuverability is even more important for quickness in changing fire positions and shortening the range, to obtain more effective fire. The judgment is the more significant because of their exceptionally wide range of experience, not least in fighting against Soviet tank forces. They consider armor as relatively less important than hitting power and maneuverability.

It is time for a reversal of the "elephantine" trend of tank design. The tank of the future will need to be fitted with night-driving vision, and probably with radar. It also should be able to pass safely over a radioactive stretch of ground. If these fresh requirements are to be combined with a heavy gun and over-all armor, the tank is bound to develop into an increasingly clumsy monster.

Design must be simplified—toward producing a mechanical David instead of a Goliath. One possible way is by external mounting of the main weapon—which should be sighted, fired, and fed with munition mechanically. The armored body could then be quite small—a cabin to house the directing apparatus and a crew of not more than three men. Much might be gained by the development of a new and lighter form of hard-hitting weapon, of rocket launcher or recoilless gun type. Much weight, too, might be saved by the development of a new form of motive power—such as the application of hydrogen-peroxide propulsion, adopted in a revolutionary type of submarine designed in Germany late in the war.

Numbers *versus* Power

The right balance between *numbers* and *power* (concentrated in a single machine) is not easy to reach. However, in history, the tactics of the Mongol armies, and also of the Byzantines at their best, tended to show that a combination was superior to relying on one or other factor alone. Besides the tactical question, there is the economic consideration that governments are very unlikely to provide the highly expensive tank of 50 to 70 tons in anything like the quantity that is needed.

Changes in Organization

There is also much scope for progress in organization. The armored forces that were regarded as so unorthodox in 1940 are now conventional. The postwar armies of the Western powers merely continue the same pattern.

They need to be remodeled if they are to avoid being paralyzed by air attack. For they cannot expect to enjoy their immense advantage in 1944-45 of moving under a vast air umbrella against an opponent who was almost devoid of such cover overhead. In maneuvering against an invading host, they must reckon with very serious interference from the Soviet Air Force—which could employ thousands of attacking planes where they can only count their own air support in hundreds. Moreover, because of relatively greater supply needs, Western armies are more susceptible to paralysis than armies of the Soviet type.

Since the Western powers are faced by opposing armies of greatly superior size, their chance of successful resistance vitally depends on being so mobile, both strategically and tactically, that they can outmaneuver the attacker. It is not only a matter of the small armored units having the utmost possible battlefield agility, so

that they can shift quickly from one fire position to another, but of divisions being able to switch rapidly from one sector to another to deliver deep "in-and-out" counterstrokes, with the aim of hamstringing the invader.

That calls for a new kind of organization. The armored divisions that proved so decisive in 1940 had gone less than halfway toward fulfilling the design I had visualized in 1920. Every vehicle in the armored division should have cross-country mobility, and at least sufficient protective armor to keep out bullets and shell-splinters.

Flexibility Is Lacking

The present-type armored division is gravely lacking in maneuvering flexibility. Its long road-bound tail makes it almost as rigid as the shaft of a spear. We ought to develop it into a mechanical snake.

More Teeth—Less Tail

We must also cut down the size of the tail. The most deadly effect of a tank stroke comes from the sudden concentration of a mass of tanks at a weak spot. However, with the present bulky organization, it is difficult to concentrate the tank heads of several divisions on a narrow sector, and even more difficult to concentrate them quickly. To make it more practicable, it is essential to reduce the auxiliary components of the division, thus increasing the tank ratio.

The tactical idea which inspired the creation of armored forces was that of *fighting mounted*—to gain mobility and maintain momentum—as the cavalry did in the times when it was the decisive instrument of battle. The incorporation of men who can fight on foot is a tactical necessity—for ferreting out enemy troops who are under cover behind obstacles, and for various defensive duties. However, it is a basic error of organization if the proportion of such "mounted infantry," who dismount to fight, exceeds or even equals the proportion that fights mounted, manning tanks and self-propelled guns.

Moreover, the mounted infantry element should have a cross-country mobility about equal to that of the armored fighting element. That condition requires full-tracked and lightly armored vehicles. Otherwise, they will not be able to back up the tanks closely—to clear defended obstacles that are blocking the tanks. War experience tends to show that the quicker these foot fighters can intervene, the fewer will be needed. A company of "tank marines," true armored infantry coming into action immediately when they are needed, might brush away resistance that an entire battalion of ordinary motorized infantry, brought up later, could not overcome when the obstacle has been reinforced. Time is decisive in war.

Supply Problems

The supply requirements of the division must be diminished if adequate mobility is to be attained. Armored forces must learn to move "light," and rid themselves of impediments as ruthlessly as Sherman did in order to make his marching forces mobile. We need another Sherman to slim and streamline the present armored forces. They must be capable of operating self-contained for several days, or even weeks, instead of being tied to lines of communication. Airborne supply could be of great help.

If we can solve the problem of designing a light tank with a highly effective armor-piercing weapon, it should be possible to form armored divisions that can be carried complete by air. Such divisions, dropped in the Soviet Union's back areas near the Caspian Sea, might play havoc among her vital war supply sources, particularly if used to exploit the confusion caused by strategic air attack.

Extending Armor's Power

In organization as in tank design, there are many possibilities still undeveloped by

which the power of armored forces may be not only maintained but extended—to create a new revolution in warfare. Given such fully mobile forces, the Western powers should be able to make rings round the Soviet Army as at present organized. However, if the Soviets were to develop such forces and we had not done so, a disaster worse than 1940 would befall us.

An Opportunity for the West

Hitherto, Soviet tank tactics have not advanced beyond the "battering ram" idea, and if Korea be a guide they still seem to be wedded to the method of close cooperation with infantry. It would be unwise to discount the possibility that they have a different technique in mind in case Stalin decides to involve the West, but lack of experience in true "tank warfare" may be a check on its development by them. The Western powers have the greater capacity for a fresh technical and tactical jump *if* their military leaders have the imagination and vision.

Before Korea, many infantrymen were arguing that the new bazooka would keep any tank at bay, while many airmen declared that they were now able to stop any advancing body of tanks. Experience has refuted both these cherished hopes.

I doubt whether the bazooka can be really decisive as a "tank killer" unless its effective range can be trebled or quadrupled—and that will be hard to attain. If it be eventually attained, it may destroy the value of armor, but not the value of fast cross-country striking power, which forms the more basic value of the tank.

A greater prospect of nullifying the tank may lie in the development of atomic weapons suitable for tactical use, or of a new chemical weapon that can penetrate any protection. However, the Western powers have a greater chance than the Soviet Union of being the first to produce such weapons—and if they are produced they would create a great opportunity for the use of the suggested new pattern armored force. It could exploit the enemy's paralysis far better than any present army could.

If we are to achieve victory in either a global or local war we must create, and are creating, in the United States a new Army—one which will rely on highly skilled soldiers, greater fire power, and greater mobility, more than any other army in history. We are doing this deliberately, because we know that if we lack superiority in any of these three elements, we would face the threat of prohibitive losses or even defeat in any fight with a Communist enemy who is clearly our superior in numbers.

Secretary of the Army Frank Pace, Jr.

British Foreign Policy

Digested by the MILITARY REVIEW from an article by Peter Calvocoressi in "The Royal Air Force Quarterly" (Great Britain) April 1952.

THE business of the British Foreign Secretary is to keep the Minister of Defense in a back seat. When the Minister of Defense looms larger than the Foreign Secretary, that means that the Foreign Secretary has failed in his principal task of protecting British interests by peaceful means. These interests are not merely the obvious narrow material British interests. To put it at its lowest, the interests of this country consistently entail some consideration of other people's interests, especially now that British power is comparatively less than it was a hundred years ago. In other words, Great Britain needs friends; and one connot get friends without considering their interests. Besides, the conduct of British foreign policy must take account of moral as well as material issues, if only because the British people are often moved by moral impulses.

If I had, therefore, to define the Foreign Secretary's tasks in the fewest possible words, I would say that they were three: first, protecting British interests by peaceful means (of which the chief is diplomacy); second, ensuring that foreign governments and peoples understand what the British think and feel on particular problems; and, third, explaining to the people of this country what foreigners are thinking and feeling, and why. Until differences are pointed out to them, people in one country are apt to assume that other people see things in the same way as they do themselves. To explain the differences, and thereby remove the sources of misunderstanding, is an important part of the work of any statesman who is bent on peace.

So much by way of introduction. Now for the setting in which these principles have had to be applied in the last few years.

At the end of the war and for a short time after it, many people hoped and believed that world affairs would be managed, as the war had to a certain extent been managed, by international agreement under the harmonious leadership of the great powers. However, things did not turn out that way, and the principal question before the Foreign Secretary ever since has been to find the right policy to pursue in the presence of Russo-American hostility. I think it is fair to say that Mr. Bevin was one of the first to realize that this was indeed the crucial question and that the dream of great power harmony was an illusion. Certainly by the end of 1947 this had become reasonably clear. The failure of the great powers to agree on a plan for the control of atomic energy, their failure to agree in Germany, and the establishment of tyrannical rule by minority parties in Eastern Europe marked the dissolution of the wartime alliance. Long, frustrating conferences created in many Westerners the feeling that there was no will for agreement on the other side, or at any rate no room for agreement.

Two Possible Policies

Once this view had been accepted, it was necessary to face an alarming fact: the West had disarmed and found itself, therefore, at a serious disadvantage not only in the face of a threat of war but also in negotiation. At the same time, economic problems turned out to be even more serious than had been expected. It became clear that, even with the support given by the Americans through the Marshall Plan, Europe would take some time to stagger to its feet again. In these circumstances, there were two possible policies for Great Britain and for the other

non-Communist countries of Europe. Western Europe could, on the one hand, throw in its lot with the United States, rearm, and hope to prevent a new catastrophe by showing a bold front to the possible enemy. Alternatively, Western Europe might refuse to take sides in a struggle of giants which seemed to many Europeans to have nothing whatever to do with them; these hoped to avoid the catastrophe by staying neutral or, more positively, by assuming the role of mediator.

Western Agreement

That Europe has decided to adopt the first of these two policies is largely due to British policy. The North Atlantic Treaty, signed on 4 April 1949 by 10 European states and by the United States and Canada, was a triumph for the British view, which can be summed up in two propositions: first, that neutrality was an unreal will-o'-the-wisp, which would avail nothing in the event of war; and, second, that any association of Western states, whether for economic or for military purposes, would be ineffective if it did not include the United States. This view did not prevail without opposition. In Great Britain itself there were some who, in accordance with the national character, fancied the role of referee in international affairs and coveted the glory which would come to the sensible, independent peacemaker. There were also some—and there were many more of them on the Continent—who represented the American way of life as hardly less obnoxious than the Soviet (of which, incidentally, they knew far less). Again, it was argued that to join the American camp was tantamount to provoking the Soviets to start the very war which everybody wanted to avoid. Neutralists, while admitting that neutralism was itself a risky policy, argued that the American alliance was the one thing worse, since it left no chance at all of avoiding an arms race, ending either in war or in an economic collapse from which the Communists alone would profit. There was also another school of thought, which believed that Western Europe could become a third power in the world roughly equal with, and so holding the balance between, the United States and the Soviet Union.

A Counter to Aggression

The dominant British view has been that all these arguments were false: that Europe could never become a third force in world affairs and was, for the time being, dependent on American charity for much of its food and raw materials; and that the neutralists were blind, if they imagined that unoffending weakness would provide a passport to salvation. Growing fear in Europe had led in 1948 to the signing of a defensive treaty between Great Britain, France, Belgium, Holland, and Luxembourg. This was in British eyes but a stepping stone to a wider alliance. Speeches by leading Americans gave grounds for hoping that, as the United States had supplemented Europe's economic efforts with the Marshall Plan, so she would again support Europe's defensive efforts, provided that the Europeans first took some steps to get together and help themselves. These hopes did not prove vain, and the five-power Treaty of Brussels of 1948 was followed a year later by the North Atlantic Treaty and then by the American Mutual Aid Defense Program, under which arms and other military supplies have been arriving in Europe for the past 2 years. As a result of the North Atlantic Treaty, Great Britain has been committed to a strenuous course of rearmament, and she has been committed to this course because the leaders in both the principal political parties believed that the best way to counter possible Soviet aggression was to become strong once more, and that the only way to become strong was through an alliance with the United States. Since the signing of the treaty, Great Britain and the other

signatories have been chiefly concerned with making it work; with producing the organization, the equipment, and the formations needed to give it substance. Questions have also arisen about the extension of the alliance into the Mediterranean and about the beginnings of a similar organization in the Middle East.

The Situation in Asia

In Asia, the outstanding postwar event has been the victory of the Chinese Communists over the Kuomintang. By this victory, the Soviet Union acquired an ally for the first time since the end of the war. Whereas in Europe, the Soviet Union has a number of satellites, who are not very strong and perhaps not very happy, in Asia she now has an ally of the first rank. The Sino-Russian treaties, signed in Moscow in February 1950, are the counterpart of the North Atlantic Treaty and they mean that, while the United States and her friends have regained the initiative in Europe, in Asia the United States is on the defensive. The Sino-Russian alliance also means that the American policy of containment—that is to say, the policy of building up situations of strength on the Soviet perimeter in order to check any further Soviet expansion—has been converted from something difficult into something Herculean; for the containment of the USSR is one thing, and the containment of the USSR *plus* China is quite another. Further, the new situation which was created by the Chinese Communist victories produced, not indeed a split, but uneasiness and friction in the Western alliance.

In 1949-50, when power in China passed to a regime unfriendly to the Western powers, the West was presented with a difficult choice. Assuming that there was a struggle going on between the Soviets on the one side and the Anglo-Americans and others on the other, the latter had to decide what attitude they should adopt toward the new Chinese Communist Government. They might try to detach China from the USSR, or they might resolve to regard China as irredeemably in the enemy camp. The main objection to the first policy was that it would certainly take time. There were those who argued that there was very little time to spare and that it was pointless to waste time and effort and possibly money in trying to make friends with a power which could not be won over before the conflict broke out. If this view were correct and China had to be regarded as an enemy, then it was urgent to make friends with the smaller maritime states of Asia and especially with Japan. However, the Western allies were not by any means convinced that this view was correct. The British, in particular, wanted to try the alternative policy based on the belief that the Sino-Russian alliance was not cast-iron and might be tampered with in good time. Great Britain recognized the Chinese Communist Government in January 1950—that is to say, the British Government recognized the plain fact that the Chinese Communists had in fact the best claim to be considered the rulers of China, whether the British or anybody else like that fact or not. It was expected at this time that other countries, notably the United States, would follow the British lead. But things did not turn out as expected. Americans are traditionally more inclined than the British to regard recognition of a foreign government as something more than recognition of a fact. Whereas the British accord recognition to a government which has in fact established itself, regardless of whether they like it or not, the Americans have inclined rather to the view that recognition implies approval, and of course the new government in Peking did not meet with American approval. Supporters of the Chinese Nationalist Government were also more numerous and more vociferous in the United States than in this country. As a result, the United States had still not recognized Peking when the

conflict broke out in Korea at the end of June 1950. This made it more than ever difficult to secure American recognition, and active Chinese intervention in the war later in the year made it quite impossible. The principal result of this was a divergence between British and American policy which still persists, however much both parties try to conceal it. There is, therefore, a certain awkwardness among the Atlantic partners when they come to consider affairs in the East, though they all know that the preservation of their alliance and of their good temper among themselves is of paramount importance. These differences, however, are differences of method and not differences of aim, for the Americans—like the British, French, and others—aim above all at peace in Asia in order that they may have the time and the energy and the resources to help the peoples of Asia to raise their standards of living and to secure their friendship. One of the most tragic results of the conflict in Korea—and a setback to Anglo-American policy—is that so much money has to be spent on war material in Korea at a time when the Western powers were preparing to spend this money in Asia in quite different ways.

The disagreement between the British and Americans over policy toward China emphasizes something new in the conduct of British policy. It has long been necessary for a country to work out its policy in co-operation with its allies, but there is a great deal of difference between the position of a senior partner in an alliance and a junior partner. Great Britain has been used to the position of a senior partner. Now, however, in relation to the United States, Great Britain is a junior partner and is having to learn the techniques appropriate to this unaccustomed situation. The chief differences between a very great power and what we may call a secondary great power is that the former can more easily afford to make policy at short notice or to change it overnight. This is a luxury which goes with the possession of surplus power. At the same time, such sharp changes can make things awkward for junior partners. The junior partner, therefore, has to look far ahead and to be constantly trying to influence the senior partner in the making of joint long-term policy. It is particularly important in this country at the present time to see that the machinery of consultation between London and Washington is first-class and constantly functioning, for if it is not, London may suddenly be faced with unexpected and unpleasant situations which London will be powerless to affect at short notice.

Aim to Prevent War

What is the most important question in the future? I think it is this. The most important element of British foreign policy at the present time is the alliance with the United States, and the most important expression of that alliance is the North Atlantic Treaty Organization. Now this alliance and this organization proceed upon the basis that, in order to avoid a third world war, it is necessary for the West to rearm. The first object of this rearmament is, however, not to win a war but to prevent it; winning the war is only the second object. Rearming to prevent a war is admittedly a risky business, though possibly less risky than any other course. One of the difficulties is to know when to stop. The West is rearming in order to be able to negotiate with the Soviets on equal terms and in order to induce in the Soviets a real desire for a settlement. The big question in the future is to know when the West has rearmed enough for these purposes, because to continue rearmament beyond that point would be dangerous as well as needlessly expensive. This, then, is the big question for the experts—that is to say, Foreign Office officials and diplomats. A great deal depends on their ability to get the answer right.

Leaguering in Mountain Warfare

Digested by the MILITARY REVIEW from an article by
Captain J. C. Gorman in the "Australian Army Journal" April 1952.

THE Korean operations changed many desert practices, and one of the most radical changes was shown in the method of leaguering.* Conditions were completely different, not only topographically, but militarily as well. In the Korean conflict, the enemy was relatively primitive compared with the *Afrika Korps*, they used practically no tanks, and, most important, there was virtually no Chinese Air Force. The line was continuous, ensuring that units could not be outflanked by a large force (unless the flanking divisions collapsed) and the primitive Chinese line of communications was unable to cope with long penetrations or sustained offensives. The country being very close, tanks were valley bound, and most vulnerable to infantry ambushes. The main enemy attacks were carried out by swarms of infantry, supported by accurate mortar fire and some artillery. Thus, out of a different set of local circumstances, the United States Eighth Army adapted itself to meet those circumstances.

The leaguer was studied, in reserve areas, and several rehearsals carried out, and from these the new mountain leaguer was evolved. The main threat being infantry masses, the leaguer became very tight, and dispersal, to counter air attack, was not necessary. Because of the almost complete lack of cover, track discipline was important.

Establishing the Leaguer

In action, the squadrons (all of which operated independently, one being forward at all times) were generally busy fighting and supporting infantry attacks until darkness ended operations. The hills being alive with groups of enemy infantry, the leaguer was always as far back as possible, compatible with dawn requirements. This was about 2 miles in rear of the confused area, where enemy and allied infantry were somewhat mixed. Thus, the leaguer was always occupied after dark. The squadron second-in-command picked the area, usually dry paddy fields. Tanks were guided in by the troop leaders, nose to tail, to make a complete circle, leaving an entrance, which was blocked later by the last tank. This move resulted in a solid wall of bazooka plates, with about 4 to 5 feet between tanks. The guns were laid at 2100 on all tanks, giving all-round defense.

The spare men in the leaguer immediately began to dig narrow pits between the tanks. These were manned, in the event of a raid, by the drivers. It was decided that the leaguer would not in any circumstances break up and spread out, as this would enable the Chinese tank-hunting parties to deal with each in turn. The only tanks to move were to be those which would endanger others, that is, such as those on fire. The guns were loaded with high explosives and laid to strike about a hundred yards outside the leaguer. Grenades were laid on the turret roof, and the driver in his pit had a box of grenades. Bomb throwers were loaded with parachute flares, and the offensive defense was considered to be complete.

Final Preparations

Inside the leaguer were driven generally two medical half tracks, the fitters' half track, the jeep, the two scout cars, and

* Leaguer is the term applied to the positions established by combat (particularly armored) units for nighttime defense. Leaguering is the term applied to the establishing of a leaguer. This practice is similar to the system used by the American pioneers when they formed a circle with their covered wagons at night to provide protection against Indian attacks.—The Editor.

the armored recovery vehicles. The tank dozer was left with the regiment, and the A1 echelon trucks (administrative and service vehicles) drove around outside the leaguer, replenishing fuel, ammunition, and food. This duty completed, all the 3-ton trucks withdrew about five or more miles. It was considered that soft-skinned POL (petroleum, oil, and lubricants) and ammunition vehicles presented too much of a risk to be left where they could be struck by tracer bullets and possibly set on fire. Maintenance was carried out, the fitters working under a canvas lightproof sheet, and the crews then cooked their meal. Because of the lack of fires, this consisted of a can of C rations and tea brewed on the immersion heaters in the tanks.

Security Patrols

At no time did a squadron leaguer forward of the local infantry. It was invariably south of the infantry, but the west, east, and south flanks were frequently unprotected, and, as the enemy was swarming through the hills, and small parties often 3 miles behind the tanks, these three flanks had to be watched closely. Patrols of three or four men were sent out about 200 yards, with either a long string to the sentries, or radio sets. On the approach of the enemy, they were to give the alarm, and then come in. They wore suitable identification marks.

Operational Procedure

The alarm being given, crews mounted, switched on the master switch, radio set, generator, and power traverse. The drivers manned their holes, and the No. 2s were provided by the men from the other vehicles. The Royal Artillery Observation Post officer was in a position to call down artillery fire. One troop had the responsibility of lighting the area with flares—two or three were kept continually in the air. When this troop had expended its flares, another troop took over and the night became as bright as day. Tanks switched on and off their big spotlights, which added to the glare and had a dazzling effect on the enemy. We sometimes "attacked" practice leaguers, and the patrols felt horribly naked in the blaze of light. The spotlights often caught patrols advancing, but the distinctive pop of a flare being fired gave the patrols time to hit the ground before it burst. It is hopelessly difficult to shoot out a spotlight at night, as we discovered in trying to sight on them.

In April 1951, we were attacked in such a leaguer. However, it was a fairly peaceful affair, the artillery breaking up the attack about 400 yards from the tanks. The Chinese had come around the west flank, and had penetrated between the tank leaguer and the infantry. The artillery cut the entire attack to ribbons that night.

When the tanks were in support in the line, things were not so well organized. For weeks at a time in the front line, no enemy would be seen. The tanks spread themselves on one side of a road without cover, track discipline, protection, or organization. The guns were sited to cover likely approaches, but the leaguer was always full of soft vehicles, visitors, POL dumps, ammunition dumps, and similar supplies. Lights blazed most of the night, and thorough maintenance was carried out during the day. Patrols went out every day with infantry companies (usually a troop at a time), and a liaison officer, who walked with the company, called down the tank fire by radio when enemy troops were encountered. A wired and mined belt extended across the front, the infantry holding the hills. The tight leaguer was only used when it was necessary, which was when the Chinese had broken through, and the front was fluid.

Textbook Theories

It has been written in many textbooks that a leaguer should be wired in, mines and booby traps laid, and generally made impregnable. An attempt was made to follow this principle, somewhat akin to the

Pacific perimeter, but in action it was immediately discarded. Tanks carried rolls of concertina wire, but with the leaguer preparation, maintenance and feeding, issuing of orders, and other necessary duties, crews were too tired to undertake engineer operations. The days in battle were long and very tiring. The defense was based on fire power.

Methods and Techniques Change

Standard warfare training does not always apply in the other types of warfare, and frequently one must discard previous training to adapt oneself to local conditions. This means that regiments, when in reserve, must work harder than in the line, rehearsing, planning, and working out new methods. Korean operations are unique in themselves, and it is unlikely that a similar operation would take place elsewhere. The general training is very necessary to give a background to experiments, but methods and techniques, like weapons, must always keep changing, and the local commander must always be ready to work out his own solutions to the new problems.

The Need for Amphibious Forces in the Postwar Situation

Digested by the MILITARY REVIEW from an article in the "Journal of the Royal United Service Institution" (Great Britain) February 1952.

AT THE end of World War II, the neglect of amphibious warfare was, by general consent, classed as one of those errors which we would never again commit. Some 6 years of peacetime financial stringency have, however, taken their toll of many of the good intentions of 1945, and not the least of which is amphibious warfare.

This country is vitally concerned with the vast problems of air defense, land defense of Western Europe, and defense of our sea communications. Defense preparations to meet these problems are enormously costly and seem to call for every shilling and every man that can be extracted from the Treasury and the Ministry of Labor. Under these conditions, can we logically expect any considerable expenditure on amphibious warfare? Yet can we neglect the hard-learned lessons of 1939-45? Is it not possible to achieve something worth while with the limited effort which can be spared?

The Past

Amphibious operations in the last war grew from very small beginnings to gigantic proportions. In 1940, we needed, and lacked, the ability to mount coherent amphibious operations on the scale of one or two brigades. In 1944, we needed, and had developed, the ability to mount *Overlord*. The very lavishness of our latter day amphibious resources may be a source of postwar weakness. It was clearly impossible to retain in peacetime the material and manpower on the *Overlord* scale, yet at the end of the war we were accustomed to think and work by *Overlord* standards. Cut down the material and manpower to what can be afforded in peacetime and these standards are unworkable. Unless our ideas are radically altered, what remains is a museum of the past, rather than a system for the future.

Types of Operations

If the amphibious operations of the past are examined, it will be seen that they fall into two distinct types:

1. *Continental amphibious operations* such as Tunisia, Sicily, Italy, and Normandy. These operations have been, in effect, the opening move of a land campaign.

Forces have had to be put ashore with complete scales of all necessary equipment, however heavy and expensive in shipping. Usually time has been available, and indeed essential, for planning and for assembling the necessary forces.

2. *Maritime amphibious operations*, such as the landings in Iceland, Norway in 1940, Diego Suarez, and, of course, Guadalcanal and the later Pacific amphibious operations. Raids, such as Zeebrugge and St. Nazaire, also fall within this classification. These operations have been essentially maritime in their conception and their object has been the furtherance and exploitation of sea power.

No one before 1940 could have foreseen the actual course of the war, but the general requirement for maritime operations could, and should, have been foreseen. In 1940, reasonable foresight would have provided in advance a small force, trained, organized, and rapidly available for maritime amphibious operations. Plans for a later build-up of larger forces for continental amphibious operations in case of need might also have been prepared. The development of the Fleet Marine Force of the United States Marine Corps between the wars shows what could have been done, though perhaps on a smaller scale, in this country.

The Future

So much for hindsight. How far are we justified in assuming that similar provision should be made for a future war? Whatever may happen later, continental amphibious operations are not likely to be possible in the main theater in the early stages. This is not because our land forces are already committed on the Continent on a larger scale than in 1940—they might want the assistance of a flanking operation on the Inchon model—but because the provision and maintenance with modern equipment of the amphibious lift, necessary for a force capable of intervening in the main land battle in Europe, is not possible in peacetime. If continental amphibious operations are required, they must, as in the last war, wait until the necessary forces can be developed.

On the other hand, maritime amphibious operations can be successfully carried out with comparatively small forces. Naturally the main enemy land forces must be avoided and, except for raids, operations are limited to those areas in which such forces cannot easily be deployed. There are, however, land areas of this type adjacent to most important sea routes and areas. It seems reasonable to suppose that the struggle to control such routes would be a vital part of the naval campaign and that the seizure and denial of advance bases by both sides could play an important part in that struggle. Allies, too, isolated from the main land battlefields, may require sea-borne assistance. As a secondary requirement, we could exploit sea power against the sea flanks of the main land battle, not only by bombardment, but by sea-borne raiding. These operations, avoiding either in time or space the main enemy land forces, would be an important and practicable means of furthering and exploiting sea power, and would be essential to the maintenance of an offensive policy at sea.

The facts of air attack must, of course, be faced. In maritime amphibious operations of the future, adequate carrier-borne, or other, air cover will be necessary for the initial attack and, except in raids, the early development of our own air forces on the airfields ashore will be vital. Indeed, the establishment of such advance airfields is likely to be the most frequent object for maritime amphibious operations. Guadalcanal, so vividly described in Volumes IV and V of the *History of the United States Naval Operations in World War II*, is the classic prototype of such operations. Henderson airfield was the prize in the long train of sea, land, and air battles which the American landing set off. Midway was an at-

tempt by the Japanese to carry out a similar operation, which was frustrated by their defeat at sea before they reached their objective. Thus, the two great sea battles, which marked the turning point of the Pacific war as surely as El Alamein and Stalingrad marked those of their respective land campaigns, were maritime amphibious operations for the establishment of advance airfields. The existence of the atom bomb may, in the future, enforce greater dispersion of the base to be secured, while, for our part, we shall be reluctant to use the bomb against enemy forward bases in friendly territory. Otherwise the situation is not likely to be affected. The extension of the range of aircraft has made heavy bombers directed against land targets independent of advance bases, but not so for the aircraft required to patrol sea areas and to seize fleeting opportunities to strike enemy ships and submarines, or to give fighter protection to our fleets and convoys.

The Light Amphibious Force

We should, therefore, develop the technique and forces necessary for maritime amphibious operations. It is no good, however, planning them as cut-down versions of *Overlord*. New and appropriate methods must be planned and developed. The assaulting forces must be trained and organized for the special task; to operate in the less accessible areas and to exploit speed and surprise, instead of relying on overwhelming fire support and heavy equipment. Sometimes the main assault may be airborne, but, even when it is not, the characteristics and organization of the sea-borne assaulting troops should resemble those of airborne or mountain formations. Commandos are, of course, the obvious source for the assaulting infantry, but after that we come up against our complete lack of amphibious troops of the supporting arms. It is no good deceiving ourselves about this. Commandos will require support—not the heavy support of the main land battle—but, if the advantages of sea-borne attack are to be exploited, something rather heavier than that provided for the airborne division. The units providing this support will have to meet and overcome the special problems of their arms in this task. Armored, light artillery, antitank, light antiaircraft, and engineer units are required which should bear the same relation to continental warfare units of their arm as commandos do to normal infantry. Then all the units must be assembled and work together as a team. The old familiar habit of the component members of an amphibious force meeting each other for the first time when a movement order deposits them in a ship bound for a hostile coast is really not good enough.

Sea and air must take their place in this team. The naval amphibious lift must be accustomed to plan and work with the assault force. The naval aviation components necessary to operate captured airfields at short notice must be part of the same team and organized to follow close behind the assaulting troops. Naval bombardment and close air support will play an important part in the support, and the assault and liaison teams must form a permanent part of the force, ready to control whatever bombardment and air support is allotted for a particular operation.

The Cost

But will not this be very expensive in money, manpower, and material? Not if the subject is handled sensibly and economically. A light amphibious force based on one brigade group would by itself be sufficient for some operations, and, for those requiring greater strength, could act as the spearhead for normal formations. Suppose it were decided to maintain this force in peacetime. The present commando brigade would form the basis of the force and supply an infantry component of about 2,000 men for it. The specialized

supporting arms would have to be provided as properly found units or subunits and, together with bombardment and air liaison detachments, might account for another 800 to 1,000 men. Of the amphibious lift, some landing craft flotillas and force headquarters would be required as units in peacetime. The remaining flotillas might be found from the volunteer reserve, while skeleton provision should be made for the crews which would man LSIs (landing ships, infantry) found from trade on mobilization. About 500 would probably cover provision on this scale for the lift. Finally, the units required to operate airfields could be maintained in peacetime in skeleton form, except for the planning headquarters, which should be more fully manned. This would require another 200 to 300 men. Thus, for a manpower expenditure of about 4,000, a small light amphibious force could be provided in peacetime.

Of this 4,000, about 2,000 would come from the existing commando brigade and some of the remainder could be found from other existing amphibious units. Apart from its readiness for operations on the outbreak of war, such a formation, progressively training and developing technique from exercise to exercise and training season to training season, could make a tremendous contribution to amphibious technique. This fact would more than justify the sacrifice of most of the manpower at present engaged in amphibious commitments. To go to extremes, even the School of Amphibious Warfare could be sacrificed and its functions performed by attaching officers to the light amphibious force during the training season and requiring its staff to run courses for them during off periods. This extreme would indeed be undesirable. What an advance it would be if the present school were working hand in glove with a light amphibious force. Retaining the school and sacrificing most of the rest, an appreciable contribution could be made toward finding the additional 2,000 required. By doing this we should be turning nonoperational overheads into fighting troops.

Departmental Interests

Now we come to the question of whether this force is really wanted by the three services. The strategic requirement has been shown, but will this carry much weight in the departmental atmosphere of Whitehall? First the Army. The continental commitment in Europe is, in all conscience, sufficient to engage the full attention of the field army, yet there would be reluctance to forego the ability of field army formations to carry out an amphibious assault. Such self-denial is not, however, necessary. Drafting and secondment between the field army and the army and marine units of the light amphibious force would do far more to spread practical knowledge of amphibious operations than the present policy of occasional exercises for formations primarily concerned with their continental role. Add to this the development of practically tested technique and doctrine, and it is clear that, far from the existence of a light amphibious brigade group reducing the ability of field army formations to undertake amphibious operations, the reverse would be the case.

The main burden of finding a light amphibious force would fall on the Navy, which would not only have to find the ships and the men for the amphibious lift and possibly for the airfield component, but is, of course, also responsible for the present commando brigade. Moreover, in war, the support and maintenance of an amphibious operation would make a far greater, if temporary, demand on naval resources. The only justification for such demands can be that operations of the type envisaged are as much a part of modern naval warfare as were the great carrier battles of the Pacific and the carrier-borne air strikes of that and other theaters.

Amphibious forces must be trained and maintained during peacetime so that they will be ready and available for action whenever or wherever required. Above, United States Marines storming ashore during the amphibious invasion of Inchon, Korea. Below, United States troops participating in an amphibious exercise.—Department of Defense photos.

A Form of Insurance

In all forms of warfare, there is a strong temptation to remain on the defensive. This temptation is particularly strong for the free nations in the early period of a war, when the aggressors have the advantage of superior numbers and equipment. However, we should know by now where passive defense leads us. If the American admirals could have foreseen the naval casualties they would suffer in holding Guadalcanal, they might have been excused if they had called off the operation. Yet, these casualties were balanced by those of the enemy and the pay-off came in the passing of the initiative from the Japanese to the Americans. The question is, therefore, not so much whether the Navy can spare the effort, but whether it is, in the long term, the most economical way of carrying out the Navy's task. In the final count, it is highly probable that political and strategical factors will force us into maritime amphibious operations, as they did in Norway and elsewhere in 1940 to 1942. Operations by improvised forces will be costly. In Norway, a trained amphibious force, capable of seizing and operating an air and sea base, would have more than paid for itself in saving naval casualties alone.

Nevertheless, additional manpower will be required, and, in peacetime especially, it will be difficult to persuade the Minister of Defense, who must balance the claims of the services, to grant it. However, the need is a real one and the proposal an economical way of meeting it. Compared with the manpower we are prepared to use to support our allies by continental land operations, the additional manpower required for a light amphibious force is very small, while the advantages to be gained, both in the protection of our sea communications and in the sphere of foreign affairs, by exploiting sea power to assist our allies, are great. Some 50 years ago, one of the major factors in our European and world diplomacy was the fact that the Foreign Secretary could send a British battlefleet to a disturbed or threatened area. Some of that power would be regained by a fleet which could call upon sea-borne amphibious forces in addition to its carrier-borne air force.

Conclusion

The answer to the problem of applying the lessons of the amphibious operations of the last war to the present situation will be found by distinguishing between the continental and the maritime aspects of the problem. A light amphibious force, designed for maritime operations, would make a real contribution to the pressing defense problems of the day and at the same time develop, by practical experience, modern amphibious technique. This force, maintained at the scale of one or more brigade groups in peacetime, could be expanded in war, either from reserve units or by converting infantry brigade groups to form additional amphibious forces. The practically established doctrine and experienced officers, made available by the prototype force, would make the rapid achievement of either possible. Without it, the naval forces or military formations converted after mobilization for amphibious warfare will have to start from the beginning, having only the dead doctrine of a past war, preserved indifferently on paper, to guide them.

Finally, let us never fall back on the excuse that we lack the men and material in this country to continue the development of amphibious warfare. Maritime amphibious operations are a vital part of naval warfare and the day has not dawned, nor ever will, when we can leave our sea responsibilities to others. The smaller our resources, the more important it is to get them organized right, and the right organization for fighting forces is in operational units. Men and material are expensive; the more reason to employ them to the best advantage.

National Economy and War

Translated and digested by the MILITARY REVIEW from an article by José M. Zumalacárregui y Prat in "Ejército" (Spain) April 1952.

SINCE the early days when humanity began to wage war, economic and military interests have been strongly linked. The advancement of the concentration of large political nucleuses has resulted in the development and formation of great nations with extensive and intense economies. There is no longer a special link between the economic and military factions, but, rather, an intimate compenetration. Moreover, in war, it is becoming more difficult to differentiate between front and rear, combatant and noncombatant, and the general order of military and nonmilitary life.

Concept of National Economy

Considering the matter from the standpoint of national economy, we must first fix a concept to which the whole thought must be subjected—the national income.

This concept implies a progressive advancement of the economic theory which is confronted with a concept and a statistic of wealth. This theory establishes and studies the flow of economic goods which are produced for one purpose or another and then are reproduced increasingly or decreasingly.

Having thus established the concept, however imperfect, of the national economy, we must think of the necessary consideration. Does the passing from a normal to an abnormal regime affect the national income? Abnormal regime meaning that which is created during a state of war. A nation cannot pass from a peacetime to a wartime economy without having the problem of the utilization of the national income and other related problems. Along this line, it is absurd to think that it is possible to live beyond the national income.

These related problems affect the real or potential armed forces and must be reckoned with. The evolution of military technique has brought us from the employment of the spear and the sword to the utilization of varied and fantastic missiles. It is necessary to become aware of the deep economic problems that are brought about by this ever changing evolution. The move from a normal regime to an abnormal economy must be considered to be similar to the normal economy of an abnormal regime.

War and Peace

Can a state afford such a change? To answer this question, one need only think of World Wars I and II, the latter being more intense and on a much larger scale, but from which, nations survived. The nations involved, victors as well as vanquished, came out of the war broken, but they survived. Because of this, they have given a new kind of concept to their political and economical activities. The past record of wars shows that it is imperative to pass from peace to war and again from war to peace.

Two Major Problems

This passing period presents two outstanding problems: the financing of war and the total adaptation of economy to war. Considering the financing of a war, the money problem is emphasized too much. The exclusive thought on this point imagines an amount of money, or that which is substituted for money, as being allocated to take care of the necessities of war. I would not say that this is a false concept and that we ought to do away with it, but I believe that it loses much of its consistency when viewed apart from the total problem of economy. Money, today, is getting further away from the actual prevalescent concept within the pure economic

theory. What is thought about, known about, and believed about money nowadays is so different and varied that it introduces a new course of study which is beyond the scope of this article.

Example From Germany

Let us dwell a moment upon an occurrence in the first German Empire. They kept in the Spandau Tower an amount of gold, which came from the indemnification paid by France as a result of the war of 1870, for the express purpose of using it in the event of an outbreak of hostilities. In this way, they could obtain money and use it to gain time until the new war could be properly financed, or until a quick and decisive blow could be delivered to end the war without upsetting the national economy. World War I completely destroyed this idea. The gold was spent and it was an insignificent sum compared with the billions of marks that Germany spent during the subsequent campaigns. This coincided with the crumbling of a series of monetary theories.

Financing War Through Income

We can now put this exploded theory aside and consider the problem of financing war by the use of the income. The belligerent state must always pay enormous sums to both soldiers and civilians to acquire the varied items and services needed for war. To be realistic, we must think in terms of paper money. Any peacetime economist speaks of paper money, along with the check, as an item which is increasingly losing its perceptive reality.

Even if we have made of money something completely different in its essential functions, we are not doing away with it. There are still other vulgar and precise objects, such as wheat, potatoes, iron ore, coal, and petroleum, which compel us not to lose sight of some basic principles, such as the scarcity of material goods, without which all the money in the world becomes useless. It is easy to print all the money that is desired. Thus, one cannot afford to forget the phenomenon of paper money in Germany during World War I.

The forced outcome of diminishing the real value between an increase in monetary figures and actual economic value was an alteration in the necessary relationship between the two. The German economist Wagemann, in his book *From Whence All the Money?* studied the mechanism with which the German banking organization tried to avoid the production of instruments of monetary exchange which had no economic relationship with the economic values with which it had to exchange. The maintenance of this latter relationship gave excellent results in the last war.

Peacetime and Wartime Production

Let us consider the United States, which can be thought of as the true antithesis of Germany. Their preoccupation was quite analogous, because neither the political nor the economic systems were alike. However, because the basic economic mechanisms were similar, they endeavored in every way to avoid the production of purely fictitious ways of paying and economizing out of balance with the economic possibility of production.

The United States is putting brakes on the production of normal consumer goods to increase the production of military goods which we can say are consumption, in that they are spent when first used. Speaking concretely, the shell needs a gun to fire it, and, through use on the battlefield, the gun eventually will have to be replaced by another gun. Therefore, it is necessary to organize the consumer goods industry and the means of production from a military standpoint to meet combat requirements. Technically, this is not as difficult as it appears. Factories which manufacture perfume or nylon can easily be transformed into wartime manufacturing. It is easy to change from perfume, with a carbon base, and nylon, with a

cellulose base, into munitions production. Heavy industry can readily adapt itself from the production of peacetime implements to wartime essentials.

If this problem has a technical solution, it also has an economic solution. Nature produces nothing, but it has transformation processes. If in nature all activities are transformations of matter and energy, then the forms adopted by economic goods, that is, the economic process of production, consist of a transformation of capital. In this manner, a series of capital goods are measured and paid with money. Its products are changed into paper money and that money is transformed once more into goods of the same or different kind. However, in order to have an effective transition from a peacetime to a wartime economy, we must have government control and national discipline.

Mobilization of National Economy

We have lived, and are now living, through the primary problem of the mobilization of national economy for an adaption to war. Through this mobilization, the problems of money, prices, and salaries arise. The money problem of today is focused in a much different way than in the past. There is no gold in circulation, although there are gold supplies that can actually be used, and which will be used at the right time. However, what circulates is not money. Therefore, the utilization of gold has completely changed and its possibilities have been transformed.

Once again we are back to the problem of paper money. We create this money with the express purpose of paying those who provide raw materials, finished or unfinished products, and personal services. This is the problem: Is paper money the means of financing war, even if it is indirectly for the purpose of keeping all production directed toward war?

There has been a violent reaction against the issuance of excess paper money. Wagemann's project had reality; it consisted of not delivering any money except in exchange for certificates which were issued by official agencies upon having proof of a service performed or a product delivered. The result was good, regardless of the military outcome of the war.

Money *versus* Credit

The United States and England did not dare to follow the "shower" of paper money, instead they resorted to credit. The form or credit which they created was conditioned and circumstantiated so that money which was going into circulation would be credits which would appear in assets and liabilities of certain agencies, establishing in this way possibilities of payment and purchase. In this way, the United States was able to achieve something of great magnitude, because the extraordinary military expenses which it had in the last war were absorbing the forceful and forced savings which had been created among the people. Savings were invested by the common man in the acquisition of bonds, and, in this manner, the country was able to finance its war requirements and at the same time create investments for those who had saved. These investments, in the form of the bonds, became an amount payable at the Treasury at a specific time and produced interest in the form of a steady income.

Enormous Expense Involved

There is an enormous expense involved in a military mobilization, not just the expense of the men who handle the weapons, but the expense of mobilizing workers for behind-the-lines and home-front activities. Such mobilization completely decentralizes the peacetime regime, since the individual who has been mobilized, whether male or female, receives a salary, pension, indemnization, or some other form of remuneration. For each man in the front lines, from 15 to 50 persons are needed in the rear. The transformation from peacetime to wartime industry brings with it full em-

ployment. This full employment affirms that the transformation takes place with some characteristics which substantially modify the fear of inflation. All of this is a part of Keynes' fundamental theory which has already been accepted throughout the world. War productivity is maintained at the highest possible level by considering that the work is a form of military service to the country. This makes possible the exceptional and abnormal periods of work, longer than the normal ones common to peacetime. In this period, salaries are modified with the hours, and these modifications do away with the most effective causes for inflation.

Return to Peacetime Economy

A government in war must always bear in mind that eventually it must return to peace and, as a sacred duty, it must have things ready for that day. The problem is not just one of tearing down the war apparatus and returning the factory for explosives back to the manufacture of perfume or nylon, but to find markets for these items. Salaries must be normalized and there must be an over-all return from a wartime to a peacetime economy. This is extremely difficult; in fact, I would dare to say, the most difficult of all problems. This difficulty in returning to normalcy is aided by the mass exodus of men from the armed forces, who, instead of waiting until the return of normal times, arrive at home and have normality adapt itself to them. Since the problem is one of credit, investment, and money, when we think of these three we inevitably think about prices and salaries. That is why it is so difficult to return to normality.

Intervals Between Wars

When there were intervals of 30 or 40 years between wars, the return to peace was easy. It is not so when the intervals between wars are of 5, 8, or 10 years. After World War I, there was a crisis during 1922-23, followed by the depression of 1929-31. If we use too many of our savings to provide for instruments of war, who can assure us that the crisis is not going to become stagnant? That is another of the great dangers. All else is, to a great extent, subjected to this movement.

War potential and war economy can be obtained in a relatively short period, but the return to a normal form of productivity and a normal economy must be preceded by many peaceful years.

The close connection between the Nation's economy and its military efforts makes it impossible for peoples to be allies on one front and strangers on other fronts. When we join together for military purposes, we must also co-operate for economic purposes. When we consider jointly the distribution of armed forces, we must consider co-operatively the use of the strategic economic assets.

President Harry S. Truman

Some American Military Characteristics

Digested by the MILITARY REVIEW from an article by Captain S. Vines in "The Army Quarterly" (Great Britain) April 1952.

WHEN you learn that the British solve a particular military problem in one way and the Americans solve it in another, you are likely to assume that one is right and the other is wrong. I was recently attached to a United States organization in the field and had the opportunity to see how false this assumption can be. We can, of course, learn from each other, but very often we find that military methods which are developed in and are suited to one country are not suitable for export.

Our military characteristics, like our personal characteristics, are the result of heredity and environment. It is certainly our duty as well as our interest to understand the characteristics of our greatest ally. My intention in this article is to set out those characteristics which made the most impression on me during my visit. No attempt is made to judge or to point morals; the aim is to understand.

It may well be said that a short attachment is not time enough to form sound opinions. There is, however, much that impresses the fresh observer which is dulled by long acquaintance. Also, living and working in the field with the Americans gives one a far better insight into their characteristics than, say, joining them at a school. And it is not as if we are, as peoples, complete strangers. It is hoped that the comparisons between our two armies which follow are sharpened, without being made less accurate, by the shortness of the period in which they were acquired.

Personnel Relationships

Let us first consider the relationship in the American Army between officers and men and between officer and officer.

To our eyes, American officers and men have an easy and informal relationship. The private soldier talks freely and without embarrassment to officers. This does not imply that discipline is lax. Saluting is good, and in no case did I see a soldier take advantage of this easy access to his officers. Informality did not mean familiarity or disrespect.

This is all widely known, and one was not surprised to see it. What is not so well known is the formality of the relationship between officers. It is usual to address officers by their rank. Only between close friends are Christian names used. Saluting between officers is punctilious and correct.

Here, then, are two major matters where the British system is very different. To discover why, we must look into the background in both countries and see by what system and in what circumstances officers and men arrive into the Army.

The American System

First, we will look at the American system. The great majority of men have been educated up to the age of 17, many up to 18. It is not only the officers who have been to college, so have a large proportion of the enlisted men.

They are accustomed to a much higher standard of life than our enlisted ranks. The officers, apart from reservists, are drawn from many widely separated schools. The United States Military Academy at West Point is only one and it only produces a small proportion. Nor is it the only school for high command. General Marshall, for example, graduated from the Virginia Military Institute.

The British System

Now let us compare the British system. Most enlisted personnel left school at 14. Officers destined for the Army progress through a few recognized avenues to Sand-

hurst. A fair proportion today spend their years of education from 8 until 19 or 20 within 5 miles of Camberley; and later in their careers they are likely to return there to the Staff College.

Here, then, are two contrasting systems. The American system produces an enlisted man with a high standard of education and the assurance and polish which that brings. There is very little barrack room language. He is well able to express himself. He has much of the same background as his officers. The system produces officers for a large army (by our standards) from a large number of sources. A Californian has much less in common with a New Yorker than a Yorkshireman has with a Londoner. That is a plain fact of geography. It is unusual for American officers to find fellow officers in their units from the same home district or school.

On the other hand, the British system produces an enlisted man whose standard of education is considerably below that of his officers and with an experience of the world far more limited. The officers, in contrast, for every reason of tradition and upbringing, have a strong bond. Take any random gathering of officers: they will soon discover mutual friends from school or Sandhurst, and the family atmosphere soon develops. This would not be the case with the Americans. Their Army is produced from a continent rather than a country. This does not mean that they regard themselves as Americans in the same way as we regard ourselves as Europeans. They are rather a nation produced from a continent.

An American observer recently drew a similar conclusion from the comparison of Congress with Parliament; and although we make no attempt here to judge, it is by no means true that all the advantages lie with our system—military or political.

Command and Staff Duties

The foregoing observations are pertinent when we consider the American system of command and staff duties. The Americans have found that officers of equal rank simply do not know each other well enough to co-operate without a superior; they, therefore, appoint a superior. An example is the chief of staff at division headquarters; whereas we find that our GSO 1 (General Staff Officer, Grade 1) and AA&QMG (Assistant Adjutant and Quartermaster-General) can work together without a co-ordinator. Another example is the American reserve command (a third brigade headquarters) in the armored division: we expect the commanding officers of an armored regiment and motorized infantry battalion to be so much "in each other's minds" that they can hand over command to each other as events dictate. The Americans would appoint a commander. For similar reasons, the Americans have found it necessary to put most orders in writing; hence, there are larger staffs and even more paper than in our Army.

Language

We share a common heritage in the English language. The Americans, however, have had independent use of this tongue for some 170 years. They are nothing if not a lively and inventive people. The result is that the language now provides a fertile ground for military misunderstandings. Some comprehensive glossary is needed which would give the different interpretations we place on such important military words as regiment, logistics, supply, adjutant-general, and maintenance.

We find it hard enough to master our own system of abbreviations. When we find that to an American "CMA" is "comma" while to us it is "Corps Maintenance Area," we can appreciate the truth of the remark that the Americans and British are two peoples separated by the same language.

Relative Distances

There also is the question of relative distances. We had a discussion with an

American who was trying to recall the name of "that place close to Bournemouth where the palm trees grow." After a good deal of time had been wasted it transpired that he meant Torquay. Judged by the standpoint of a continent 3,000 miles wide, a hundred miles is indeed close.

Equipment

Americans are immensely proud of their equipment, and with justification. They love to show visitors over their tanks and guns, and with their better education they can cope more easily with modern complex apparatus. We were several times impressed with the breadth of knowledge displayed by sergeants in command of self-propelled guns or tanks. They go all out in training, subjecting their vehicles to rough handling. They are uninhibited by fears of lack of replacements. They are conscious of their country's vast industrial power. We for our part should remember that Detroit dwarfs Cowley, and not try to emulate.

Progressive Ideas

One of the most delightful American traits is their receptiveness to fresh ideas. For the last 150 years, they have increased in wealth and power at a staggering pace. The pioneering, adventurous spirit is still surging forward. Words like stability do not sound so attractive to Americans as they do to Europeans. All their tremendous progress has been gained by change and by getting ahead of the next man.

Although they have great respect for their own institutions, they are not guided by traditions to the same extent as we. All this makes a discussion with them a stimulating and enjoyable experience. There is no need to pull one's punches.

Summary

In summarizing one's impressions, one must emphasize the matter of the officer-man and officer-officer relationship. It is a matter of major importance for us to understand, and it stems from the two facts that the United States Army is a continental army rather than a national army and it has a considerably higher standard of life than European armies. This relationship is reflected in the command and staff systems, and generally results in a distrust of committees or joint command.

Language is a pitfall for the most wary. Experience is at present the only counsel. Americans have a different scale of values for such matters as distances or sizes. Something which is to us large and distant may well seem to them small and close. Americans are very proud of their equipment. They are accustomed to expressions of admiration—which one can sincerely give. Finally, an American audience is the best possible audience for hearing fresh ideas or criticism. It is receptive and its enthusiasm is quickly roused.

The foregoing remarks are not of course comprehensive. They are personal impressions of a very great ally, and of a people with whom, of all foreign countries, we have most in common. They are written in the belief that anything we can do to achieve closer understanding with the United States Army is well worth doing and in the hope that they make some small contribution to that end.

Holland's First Requirement: Preservation of Own Territory

Digested by the MILITARY REVIEW from an article translated from "Elsevier's Weekblad" (The Netherlands) 26 April 1952.

THE Lisbon Conference has not failed; it gave birth to the European army, the community of European defense.

We must hope that this demonstration of Western unity and strength will be able to prevent a world war; but should this hope fail, our country and people are vitally interested in seeing to it that our territory shall not be lost to the first assault of the Soviet hordes, and that we shall preserve it during the subsequent period necessary for containing the aggressor, unfolding the power of a united West, and driving back the enemy. True, should this happen, much suffering will strike our country: blood will flow, and much will be destroyed. Yet, having confidence in the final outcome, all this will be more bearable than an occupation that would mean the greatest suffering of all to our people. However much warfare may have changed, our territory is still "the pistol pointing at the heart of England." If the British Isles are to be regarded as a bastion of the West that must be held at any price, then the loss of our territory would, for more than one military reason, gravely endanger the British bastion. This is why our Netherlands' interest is so closely bound up with the British, and why we Dutch particularly would have liked to have formed the European Defense Community together with our British friends. This was not to be: we have to accept it, but it should be an added incentive to us to take into account the consequences of our geographical location in Europe, both by building up our own fighting forces and by exercising our influence on the conduct of military affairs.

It is again the special strategic location of our country and our ardent desire to preserve our territory in case of war that caused Holland to attach so much importance to the undiminished significance of the North Atlantic Treaty Organization and the retention, by the members of the European Defense Community, of individual membership in the Atlantic Organization, for our military position would be considerably weakened were we to be, in effect, merely members of a European Defense Community without England, with France as the leading factor. Not that we cherish any distrust of France whatsoever: quite the opposite!

However, the defense of Western Europe viewed purely from the continental European point of view might easily lead to underestimating the importance of our territory and our desire to preserve that territory. Circumstances may arise, of course—especially while we are not sufficiently strong as yet—that may compel us to abandon our territory, while the remaining Dutch forces in the European or a higher Atlantic Union will have to fight on elsewhere for the common cause; but this must be allowed to happen only if unavoidable, and not merely because the interests of the largest European partner demand it.

Neither the birth of the European army at Lisbon nor our continued membership in NATO must allow us Netherlanders for one moment to think that the goal has now been attained. We have joined both these organizations because we regarded them as the only means of serving our own vital interests. We must at all times clearly bear in mind this reason for our accession, as clearly as we shall have to bear in mind that our paramount interest requires our own territory, in case of war, to be safeguarded so long as there remains a reasonable chance of doing so. These

two considerations must determine the conduct of Dutch defense within the newly created European and Atlantic relationships.

Force of Arguments

Holland must conduct an active military policy; it must eschew the idea that defense is the job of the European Defense Community and of the North Atlantic Treaty Organization, and that its own task is limited to financial sacrifices and the building up of such forces as may be required of us to carry out the policies determined by higher organizations.

Within those international organizations, Holland will have to point out its interests with forceful arguments and make it clear what the preservation of its territory means, both for the country itself and for the security of the United Kingdom and the eventual winning of the war.

Holland faces the great North German plain which forms an attractive sally port for a quick drive to the West. However, this is countered by two important factors that offer good chances for opposing aggression along this route. First, the Dutch territory still offers possibilities for impeding such a drive, at least for a time; second, the North German plain enables the defender to operate rapidly with mobile forces, inflicting heavy defeats on the enemy's attacking troops.

Protect the Hinterland!

If Holland is successfully to advocate within the international bodies a defense policy which also aims at preserving her own territory, her representatives must be in a position to support their arguments with Dutch action—with a build-up of the Dutch forces adequate for the purpose.

It is very important to supply the best and largest possible contribution to the European army; but of equal and perhaps even greater importance is the taking of military steps to ensure protection of our hinterland against air raids, airborne landings, and internal disorders. If this be neglected there will be scant hope of preserving our territory, and our voice will not be heard.

Therefore, the rapid build-up of a partially ready air defense, capable of swift mobilization, is of primary importance to our country. Should we fail in this, our country would during the first phase of aggression be wide open to enemy air raids and airborne landings, so that it would be difficult quickly to mobilize and move our troops, while civilian morale would suffer an immediate and serious shock. That for the last-named reason an adequate air defense must go hand in hand with an efficient civil defense hardly needs to be stressed.

Equally important is the efficient organization of our territorial defense and a complete system of maintaining and restoring order. Such measures must be not only adequate but capable of immediate application.

Exchange of Ideas Required

Troops ready in the field are of great importance, but an efficient, immediately functioning protection of our own hinterland is surely no less important, and perhaps even a precondition enabling our field forces to fight in the European army. This protection is, for the greatest part, our own task, which we cannot turn over to some higher defense organization. Unfortunately, we are not firmly convinced that this national task is receiving the full attention and energy it deserves.

May the birth of the European Defense Community cause Holland clearly to envisage the conduct of her defense policies and to take those measures, inwardly and outwardly, that are necessary in order to reach the goal.

A close and frank exchange of military ideas and collaboration with England on the one hand and our Benelux partners on the other will be of the greatest importance in this respect.

The Eyes of the Fleet Must Be Sailors' Eyes

Digested by the MILITARY REVIEW from an article in "The Navy" (Great Britain) February 1952.

TWICE during the last 35 years this country has almost been starved into submission, because her organization and equipment for shipping defense were incomplete. The enemy who thus very nearly brought Britain to her knees was one who recognized that her life blood flowed in the long sea routes which joined her with rich and fertile lands in distant continents. In spite of the large general naval superiority which we possessed over Germany in both world wars, our naval power almost proved to be ineffectual against the attacks of German submarines.

During World War I, this was due to a too tardy recognition of the necessity for convoy, while in World War II it was largely caused by a chain of circumstances (among which politics played no small part) that had resulted in a neglected development of the naval air forces (compared with those of the United States and the Japanese Navies) before the war began, and a succession of handicaps connected with that matter which followed.

A Vital Component

The airplane is now recognized as one of the most necessary components of naval defense; during the late war it proved to be, when available and properly employed, of outstanding superiority over other methods for reconnaissance and search in strategical, as well as tactical, situations; it was of particular value in the attack on enemy submarines with depth charges, bombs, or rockets; and it was often used very effectively for the attack on surface ships with torpedoes, bombs, and mines. It has now become an essential part of the naval forces employed in every branch of sea warfare and trade defense.

A Specialized Force Required

Everything should, therefore, be done to ensure that aviation is properly developed for the special use of the Navy, and, if it is thought that faulty organization or some sectional interest is hampering that development, it is a plain national necessity that the matter should be investigated, and, if found at fault, put right immediately.

Many people, including those with experience within the ranks of the Navy itself, believe that such a circumstance has existed, indeed, for many years; and that there is a marked and vital disparity in aviation efficiency between the British and United States Navies resulting from the great differences which have grown up since 1918 in the administrative and operational organizations of their respective aviation components.

Not a New Problem

Certainly the problem is not a new one, and many attempts have been made by the British Admiralty during the past 30 years to have the matter put completely right; the Admiralty has long recognized the serious limitations, imposed by the severance in 1918 of the Royal Naval Air Service from its parent service, on the Navy's ability to carry out either its wartime tasks, or its peace preparations and training. However, many strong influences have always been at work against any reversion to the organization of all naval air units on the original logical principle that they belong entirely to the Navy, and the main issue has invariably been stalled by an acceptance of minor concessions, chiefly on details of administration.

For example, in 1924, a percentage of pilot appointments for flying embarked

aircraft were allowed to be allocated to naval (in place of Air Force) officers, and in 1937 the eventual absorption of embarked naval aircraft units into the naval organization proper was allowed. However, at the beginning of World War II, the responsibility for the provision and operation of a great proportion of the air units needed in sea warfare remained (as it still does) outside the Navy.

Time to Change?

It might be said that the present time, with its more urgent national and international problems and its vital call for economy in money and effort, is not the moment at which to introduce complicated interservice problems, and that any change must be avoided at all costs, even should it appear theoretically desirable. However, those who cling to that argument do not admit two vital truths; first, that a change (if needed at all) would be better applied now, in spite of some difficulty, than after our capacity to exercise adequate sea power when needed had become still further reduced by the perpetuation of an unsound and crippling organization; second, that though convincing enough proofs of the need for a change may have been lacking before 1939, the events of the recent war have amply supplied them now.

Throughout World War I, most of the airplanes used by the Navy were land based, and relatively small numbers were embarked in warships, such as the early seaplane carriers, the *Ark Royal*, the *Engadine*, and the converted liner *Campania*. The aircraft carrier, with a deck for landing as well as flying-off aircraft, did not become practicable until after the end of 1918. However, from August 1914 onward, increasingly large numbers of airplanes and small airships patrolled British coastal waters, and some 50 naval air bases were established from which these naval aircraft operated, while from many harbors naval flying boats and seaplanes were also used, their functions being mainly naval reconnaissance and antisubmarine patrol.

All these units belonged to the Royal Naval Air Service, which had been created as a new branch of the Royal Navy in the summer of 1914 by Mr. Winston Churchill, then First Lord of the Admiralty; but at the end of the war they were totally absorbed into the then newly formed Royal Air Force. Thus, though many concessions regarding ship-borne aircraft were made between the wars, the provision, manning, and operation of the flying boats and all land based aircraft needed for naval operations in all sea areas had continued to remain the business of the Air Ministry. Meanwhile, the United States and Japanese Navies created naval air branches (much on the lines of the old Royal Naval Air Service) which were developed thereafter by naval officers to meet all the known needs of naval strategy and tactics. By 1939, they possessed naval aircraft and equipment for shore based service which had well outstripped that available for British sea operations.

Wartime Naval Operations

During the 6 years of World War II, the importance of aircraft in naval operations increased rapidly. The aircraft in our carriers, and the few (catapult launched) that were carried in battleships, were originally provided only for tactical duties with the main fleets, while those in our cruisers were chiefly for extending the range of vision of those ships when on ocean patrol and escort duty. Their provision and operation was now mainly a naval affair, though even that had, only just before the war, been fully restored to naval control after 20 years under the Air Ministry. The flying boats and land based aircraft of the Coastal Command of the Royal Air Force were still all that was available for long- and short-range strategical (naval) air reconnaissance and striking forces, for antisubmarine area patrols throughout the world, and for ac-

companying our valuable convoys through submarine danger zones in the North Atlantic and Mediterranean Sea. Their units, which had risen from a mere token force after the disappearance of the Royal Naval Air Service in 1918, to a few squadrons in the early 1930s, were still lamentably few in number and inadequate in type for their tasks during the first year of World War II.

There seems to have been no other excuse for this than that the Air Ministry was (very understandably) preoccupied with the provision of bombers and fighters for its proper function of defending England against air attack and counterattacking by air, and not sufficiently familiar with the problems of naval defense. Thus, while in 1931 the United States and Japan each possessed about 300 naval shore based aircraft, those of the Royal Air Force, earmarked and equipped for use in naval defense, amounted only to a small fraction of that number in all. During 1939-40, when the German pocket battleships and disguised raiders were leaving German ports without detection by air (there were some 10 at sea at the end of that period), the regular Royal Air Force reconnaissance patrols, *Ansons*, in the North Sea had not even enough range to reach the Norwegian coast; the American naval *Catalina*, with approximately five times the range, had already been in service for several years. A few *Sunderlands* only were available for all other long-range work in the waters round Great Britain and in the North Atlantic; and a smaller number, mostly of an older type, for Gibraltar and the Mediterranean.

A Strategical Disadvantage

Consequently, not only were the shipping routes at vital points near the United Kingdom left largely without cover during the early part of the war, but the commanders of both the home and Mediterranean fleets were frequently under the gravest strategical disadvantage through lack of air reconnaissance of the enemy fleets. The time was, moreover, not one at which the Royal Air Force could be expected to afford much manpower, staff effort, or material for purposes other than the improvement of their own fighter and bomber forces, themselves lagging a long way behind national defense requirements. The dependence of the Navy upon them for the provision of one of the most vital operational components, and the crippling effect which the resulting shortcoming produced, emphasizes most strongly the dangerous weakness of such a system. Even the German Admiralty, which suffered also under its own form (Göring devised) of dual control of naval aviation, was able to exercise a greater control over a larger number of reconnaissance aircraft than our own. It is reported that there were some 270 shore based aircraft attached to the German Navy in March 1939.

An Important Change

With the addition, after the fall of France, of enemy long-range air as well as submarine attack upon our shipping, and with a growing intensity in both at the end of 1940, an important step was taken toward the restoration to the Navy of its full freedom in the use of air weapons. This was the so-called Admiralty control of the Coastal Command operations, which was forecast when, on 10 December 1940, Mr. Churchill said, in Parliament:

> It is necessary that the Coastal Command should play a more important part than it has hitherto done in trade route protection. . . . Moreover, as the function of the Coastal Command is that of co-operation with the Royal Navy, the operational policy of the command must be determined by the Admiralty. . . .

However, the result did not, in the event, make very much difference beyond that of increasing the numbers and improving the types of aircraft used; the biggest change was that, thereafter, very large numbers of

American-built long-range aircraft (*Catalinas, Liberators,* and others) came into use, and the naval defense organization benefited to that extent. The personnel in all the aircraft and at the posts of command, staff, and training of the Coastal Command continued to be a part of the Royal Air Force and, as such, were of course exchanged from time to time with those of any bomber, fighter, or Army co-operation unit. The moral separation of the Coastal Command from the Navy remained, therefore (as it still does), as complete as before; and most of the practical impediments to perfect co-ordination between ship and aircraft also remained. Yet two things of much importance had been achieved, the ineptness of the existing arrangement had been recognized, and a step, however small (and, alas, it now seems temporary), in the right direction had at last been taken.

Operational Weakness

The basic fault, however, was not corrected, doubtless because there were too many people who still believed that "our first line of defense is to be found in our Air Force," and who could see no pointers, in our plight of 1940 and 1941, to the inevitable lessons of all our history as an island nation. To most sailors and many other thinking men, it was, by the end of 1940, quite clear that the absence of the naval element in the manning of the Coastal Command, and in the planning of its equipment and its training, was resulting in alarming operational weakness; this weakness was affecting all the arrangements for the defense of shipping and the functioning of the fleet, in fact, our entire naval strategy. Two practical examples of that weakness are:

1. In the dispatch of an aircraft from a remote base not under naval command (except through cumbersome interservice channels), as part of a convoy's escort; its effectively timed rendezvous; and its critical subsequent movements needing close attunement to those of the surface escorts could easily fail or at least be seriously hampered because the personnel, from the station command down to a radio operator, belonged to a different service, and thus had basically different training and outlook from their opposite numbers in the surface ships and naval bases concerned.

2. Ground intelligence reports an enemy naval force leaving harbor for the North Sea. Unless organization of the air searching and attacking force is conducted by an experienced naval staff, and the force is led by personnel specialized in knowledge of warships and their tasks, chances of a successful interception, a true assessment of the enemy force when seen and its probable mission, or an appropriate tactical action against it are considerably, and without doubt unavoidably, reduced.

Fortunately for England, and incidentally the world, our men on the spot always pull together to the best of their ability, even when this may have been made difficult for them by faulty organization, unsuitable material, or inappropriate training. During the late war, though all too many were the occasions when convoys sailed through danger areas without the expected sufficiency of air cover, and our fleets put to sea without proper strategical air reconnaissance, it is far from the purpose of this article to suggest that the personnel of the Coastal Command and other units of the Royal Air Force did not do their utmost with the means at their disposal to help the Navy carry out its tasks. It is emphasized, indeed, that it is a tragedy that the keen and loyal personnel of those units should have been so handicapped by the perpetuation of an ill-judged arrangement, even long after it had become obvious and had been admitted to be a bad one.

A Change Is Required

The practical realization of a completely naval air component is now, of course,

bound to be difficult; but, given that the principle of doing so is right and is wholeheartedly accepted by the two services concerned (as was the case when the reverse was tried as an experiment in 1918), it will probably be found less so than many people would have us suppose. The present circumstances demand the same kind of smooth and rapid change as was made in 1918 when the Royal Air Force took over the Royal Naval Air Service and the Royal Flying Corps from the Navy and Army respectively, primarily, a change of offices and uniform; but not the kind of change that was made in 1939 (Fleet Air Arm embarked, to the Royal Navy) when units were left with reduced personnel while new recruits were being entered and trained to take the place of men withdrawn. The existing Coastal Command organization must be kept as a working machine, passing overnight from the Royal Air Force to the Navy, detailed changes being introduced later, as needed.

Above all, if any such remedy is to be a success—indeed, if, in any event, the Navy is to recover its lost capacity to do its real job—there must be no grudging of the cost of this essential improvement. Given these, or some other equally complete means of transfer, British sea power can be set fairly on its way to recovery and the British Commonwealth to its resumption of independence and international prestige.

Or are we to accept the gloomy prospect of the Navy continuing under this grave handicap, failing to get the fullest value from its forces (now so sadly depleted), and unable properly to discharge its responsibilities in war? Are we, in fact, to accept a betrayal of our fleet, of the Merchant Navy which is dependent upon it for its safety, and of the Army for its full co-operation, not to mention the public who pay for it all, merely for the sake of some variety of political convenience? However, we English are traditionally bad learners; it was Napoleon who, after his capture, had to tell us that our only future rested upon our remaining a maritime power, adding with feeling: "Had it not been for you English, I should be Emperor of the East, but wherever there was water to float a ship, we were sure to find you in the way." Such men, the world's Napoleons and Hitlers, can be successfully deterred only so long as we can continue as a leading maritime power, which today means having a streamlined 100-percent Navy. Our resources, our national temperament, and, above all, our geographical position can help us to remain one; we cannot afford to trifle with them.

East German Air Police

Digested by the MILITARY REVIEW from an article in "Aviation Age" (United States) March 1952.

WHEN plans for the East German People's Police were drawn up in 1949 and 1950, it was also decided to set up an air police organization. However, the Soviet occupation authorities approved this project only after repeated urging by high officials of the People's Police, and the actual establishment of an air police could not get under way before the end of 1950. Now, the following picture emerges:

Command

The Central Air Police Administration directs all Air Police activities. It is headed by People's Police Chief Inspector Kessler, and has its offices at Berlin-Johannisthal airfield.

Training

The training program includes glider flying, piston-engine aircraft flying, air-

craft maintenance and repair, engine maintenance and repair, and meteorological service.

The following training centers are known to have been established:

Damgarten, Mecklenburg: This center provides glider and towing flight training. It has 14 instructors, all German, and a capacity for 20 Air Police officers in each course.

Harzberg, Thuringia: The situation here closely resembles that at Damgarten.

Erfurt-Bindersleben: This training unit bears the code designation "5. Thuringian Special Alarm Unit." Planes used for instruction here include, in addition to *Po-2s* for initial training, three *Ju-52s*, two *Ju-88A-4s*, one Fieseler *Storch*, two *Pe-2s*, and a few *Il-10s*.

Rechlin-Laertz: This unit provides advanced instruction for 80 students in each course. Some *MiG-15s* are stationed here, in addition to *Po-2s*, *Pe-2s*, *Il-10s*, and *Yak-14s*.

Dessau: This unit provides instruction for 60 students in each course; otherwise facilities resemble those at Rechlin-Laertz.

Burg, Magdeburg: This center provides facilities for training 80 students in each class in piston-engine aircraft only.

Friesack: This center provides instruction for 60 students in each course. It provides initial training only *(Po-2*, and *Yak-18)*.

Finsterwalde: Small units are retrained here for *MiG-15s* by a Soviet fighter group. In the beginning, all instructors were Russians, but by now some of them have been replaced by German instructors. These are mostly former prisoners of war who have been retrained in the Soviet Union. All instruction concerning the *MiG-15*, however, is given by Russian pilots. There are no German *MiG-15* units, and all *MiG-15* flight training is conducted in mixed units.

The only towing and transport plane used for training is the *Li-2 (DC-3* USSR). A few old Antonov *A-7* gliders are available for instruction in gliding. Almost all the gliders are older German models.

Present Strength

The total strength of the Air Police on 1 January 1952 was about 5,000 men.

Plans have been laid for an increase of personnel to 13,000 during 1952, and the establishment of five Air Police groups. These include:

1. Mecklenburg-Vorpommern, stationed at Rechlin-Laertz.
2. Brandenburg, stationed at Berlin.
3. Saxony-Anhalt, stationed at Dessau.
4. Saxony, stationed at Dresden-Klotzsche.
5. Thuringia, stationed at Erfurt.

These groups are to be under the command of five inspecting agencies: Interceptor Aircraft, Fighter Aircraft, Transport and Cargo Glider Aircraft, Reconnaissance Aircraft, and Training.

With this reorganization achieved, the Air Police hope to have the following number of units available:

3 interceptor squadrons *(MiG-15)*

3 fighter squadrons *(Il-10* and *Pe-2)*

3 to 4 fighter-bomber squadrons *(La-11* or *Yak-9)*

3 transport groups *(Li-2*, and perhaps a few cargo gliders)

1 reconnaissance group *(Pe-2* or *Tu-2)*

The establishment of bomber units has been categorically rejected by the Soviets. There are also no planes for parachute units. The training program does, however, include airborne troop operations as a regular feature, using both transport planes and cargo gliders. The *Po-2* and the *Yak-14*, with enclosed cabins, are to be used as liaison aircraft.

German models are used for instruction purposes only, and these few planes are being used up rapidly. The installations of the former Junkers plant, which are being overhauled at present, will serve as a central repair depot. The construction of other such depots is reported to be underway.

BOOKS OF INTEREST TO THE MILITARY READER

THE YENAN WAY. By Eudocio Ravines. 319 Pages. Charles Scribner's Sons, New York. $3.00.

BY MAJ GREY DRESSER, *Armor*

The Yenan Way is a personal, sincere, and factual account of the rise of the Communist Party in South America which includes the methods used by the Communists in their ascent.

In his search, Eudocio Ravines, not unlike others who seek reform, turned to socialism, and later was led to become a militant Communist by what appeared to him to be the success of the Russian Revolution.

During the years he served the Comintern, the author organized and directed the successful "Popular Front" in Chile and was active in the Spanish Civil War.

He was trained in the same Moscow school which produced Mao Tse-tung, Clement Gottwald, Henri Barbusse, Romain Rolland, and many others whom he came to know intimately. He describes in detail his meetings with Stalin, Kalinin, and other Soviet leaders.

The Yenan Way derives its title from the similarity of methods and tactics employed by the Communist Party in South America and the Yenan or Chinese way. The similarity involves the ability of the Party, in both cases, to use other people and other interests in order to advance its position. Yenan, a Chinese village, served as the headquarters of the Chinese Communist Army during World War II.

Here is a book which is not only of professional interest to the military reader, but one which he will find absorbing because it is presented in a readable, narrative style. No serious student of Latin America can afford to miss this book.

U. S. FIGHTING PLANES 1952. By Lieutenant Commander Dale W. Cox, Jr. 64 Pages. Arco Publishing Company, Inc., New York. $2.00.

BY LT COL RICHARD L. BISGARD, *USAF*

U. S. Fighting Planes 1952 is an interesting tabulation which contains excellent photographs for each of the aircraft listed.

An enlightening vocabulary explaining the "lingo" used by airmen should be beneficial to uninformed readers, since the author makes ample use of these expressions throughout the entire book.

In spite of Commander Cox's attempted impartiality in narrating all of the different types of aircraft, their designed capabilities and limitations, the book leaves the impression that the author is partial to his branch of the service.

It is apparent also that this list of "fighting planes" has been restricted to those types of aircraft that carry guns, and yet on page 56 he has shown an *XP5Y-1* which has designed missions of patrol and antisubmarine action. This, in my concept, is a "fighting" mission, but by the same token, troop carrier, transport, and helicopter-rescue are also "fighting" missions. In other words, this book has only given us a partial list of United States fighting planes.

ECONOMY IN THE NATIONAL GOVERNMENT. By Senator Paul H. Douglas. 277 Pages. University of Chicago Press, Chicago. $3.75.

BY COL GEORGE C. REINHARDT, *CE*

Readers' title based expectations of a multi-volumed fine print tome, utterly incomprehensible to laymen, will be jolted by this small, interesting, provocative essay that might easily have been highly controversial if it were not phrased so good-naturedly. Practically everyone who peers within its covers will delight in finding his pet aversions on governmental spending neatly pilloried. But he will be a rare American indeed, almost as rare as Senator Douglas himself, if somewhere in its perusal he does not blush at one or more citations aimed, it seems, at him personally.

The very impartiality with which the Senator lays on the rod should make it extremely difficult for the numerous classes of accused to retort in anger. "No group in the country is more ardent in demanding the reduction of Federal expenditures" than publishers of newspapers and periodicals, yet they ardently defend postal deficits of more than 100 million dollars yearly resulting from delivering their wares at less than cost. Subsidies to silver miners, shipbuilders and operators, air mail carriers, and farmers join the lineup with all three armed services, politicians, tax evaders, veterans' administrations, and many business concerns as the author submits his specific demands for savings.

Yet all these reductions in outlay will not balance the budget, we are candidly warned. Revenues must be increased, first by closing tax loopholes, and then "if necessary increase general tax rates." This bitter pill accompanies the admission that "tax rates are at record levels" but still higher levels are preferable to "the genuine hells of inflation . . . which jeopardize our very democracy."

Such straight talk makes it possible to believe that the writer could clearly, yet simply, describe the Federal budgetary process in 32 pages; explain the conflicting theories of the budget's proper relation to business conditions (from "gold standard" to Keynesian theory) in 20 more. Those two passages alone deserve the study of every citizen.

Senator Douglas' general presentation is unchallengable, whether or not all his specific charges may be beyond refutation to a greater or lesser degree. Doubtless, "special interests" will vehemently reiterate their "right" to favored status. That, as the author explains, is no more than they have been doing for years. The value of the book lies in its practical, common sense recommendations to achieve the results the Senator so persuasively advocates. Military personnel are by no means neglected in this provocative work. Read it, and see how we look to a brilliant, conscientious exponent of both national defense and economy.

BUSINESS ORGANIZATION. By Wayne L. McNaughton. 243 Pages. Littlefield Adams & Co., Ames, Iowa. $1.25.

BY CAPT WILLIAM H. BEAUCHAMP, *CE*

Although this book is more of a student's outline than a detailed treatment, it provides the general reader a very inclusive study of business organization and processes. The volume considers in turn the place of business in society, managerial tools and techniques, finance, production, personnel, marketing, and business risks. Mr. McNaughton leans toward approval of a planned economy but in general retains a healthy respect for the present form of our business economy.

RAILROADING THE MODERN WAR. By S. Kip Farrington, Jr. Introduction by General George C. Marshall. 395 Pages. Coward-McCann, New York. $7.50.

OPERATION OVERLORD. By Dr. Albert Norman. 230 Pages. The Military Service Publishing Co., Harrisburg, Pa. $3.75.

BY MAJ ROGER E. LAWLESS, *SigC*

Overlord never ceases to be intriguing, which is understandable. Unquestionably the largest oversea military operation in history, it has so many facets that apparently there will always be room for another book about it.

From his vantage point as a military historian in Europe, Dr. Norman capitalized on an opportunity to see the fateful 90 days encompassed by *Overlord* unfold. In postwar retrospect, he has sifted through a mountain of data and has come up with a readable handbook on *Overlord*, with the emphasis, if any, on the monumental planning. It fills the gap between the round-by-round, voluminous official history and the undocumented, haphazard accounts by hangers-on whose stock in trade during *Overlord* and since has been unfounded criticism founded on hindsight.

Operation Overlord flows well. Initially, the book clears the air regarding the United States-British "controversy" as to the time and place of the allied main effort in Europe by first explaining "Arcadia" and subsequent strategy conferences at the chief-of-state level. It is no easy thing to move an armed multitude and its vehicles and supplies to the shores of an enemy camp. The interlocking strategic and tactical aspects of *Overlord*, together with the attendant questions of technology and techniques, had to be reconciled—and they were.

As the author points out, *Overlord* amounted to five big problems: (1) how to assemble and embark the allied force and its equipment, (2) how to transport them to France, (3) how to break the coastal crust of German defenses, (4) how to deal with German reserves, and (5) how to conceal allied strategic intentions from the German High Command.

The first three of these factors are treated ably enough, but the book does very well by the ingenius allied cover plans and deception, a trade in which the Germans thought they had the only license. Allied trickery succeeded in convincing Hitler that Normandy was only a diversion and that the main landing would be made in the Pas-de-Calais and another landing in Normandy. He reacted accordingly and held troops in both places, much to the relief of the hard-pressed allies.

By and large, *Operation Overlord* serves its purpose. Although it has no particular high spots, neither does it have any low ones. As Lieutenant General Walter Bedell Smith writes in the foreword: "The topic is absorbing for the lessons it holds . . . with the possibility of *Overlords* yet to come and because it exemplifies allied unity . . . which was developed to such an extent that it has become the symbol of successful international co-operation."

THE RISE OF CHINGIS KHAN AND HIS CONQUEST OF NORTH CHINA. By H. Desmond Martin. 360 Pages and Maps. The Johns Hopkins Press, Baltimore. $4.75.

TOTAL TERROR: An Expose of Genocide in the Baltics. By Albert Kalme. Edited by Walter Arm. Illustrated. 310 Pages. Appleton-Century-Crofts, New York. $3.50.

THE ECONOMIC DEVELOPMENT IN LATIN AMERICA. By Simon G. Hanson. 531 Pages. Inter-American Affairs Press, Washington. $7.00.

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